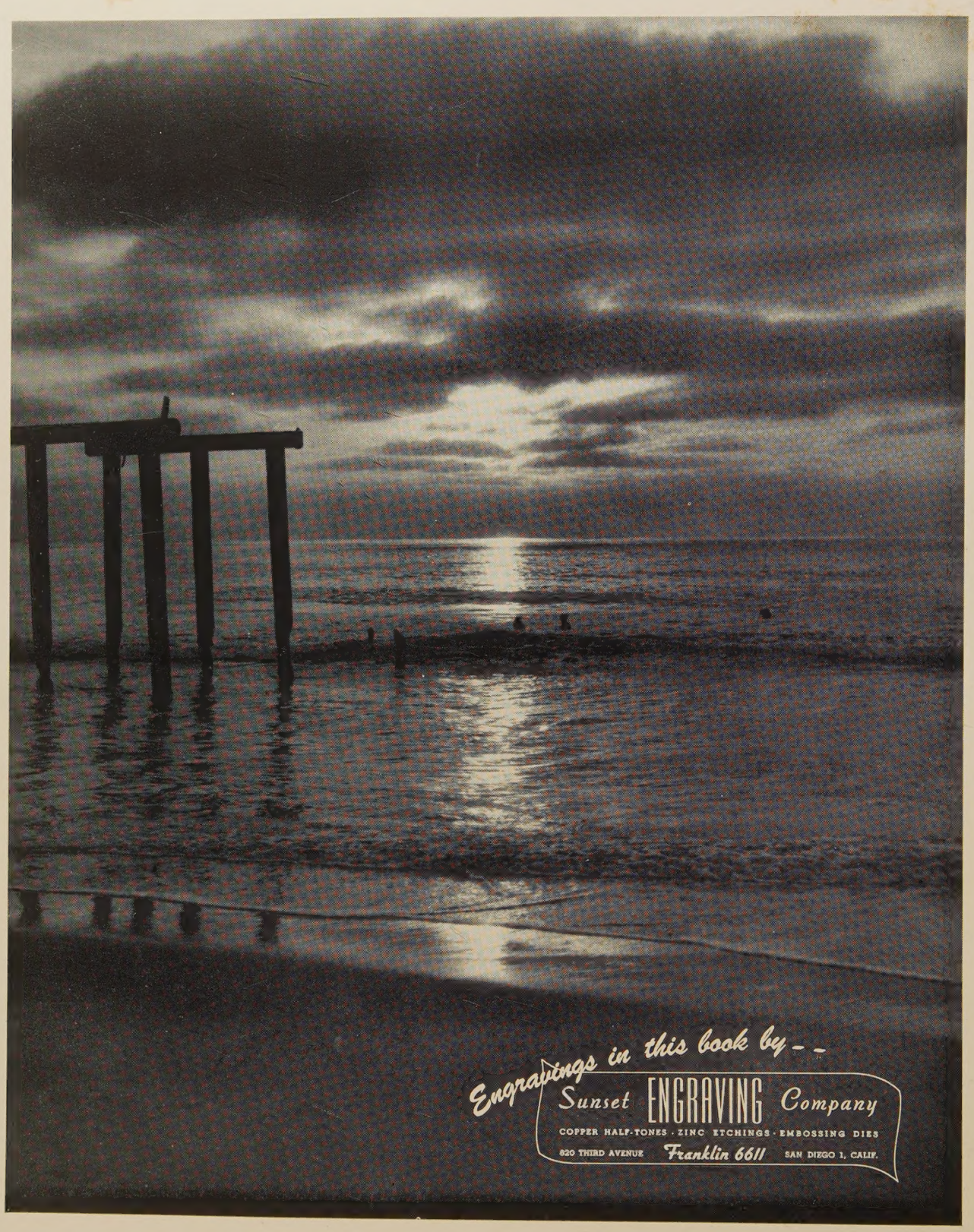
ANNIVERSARY ISSUE

LIBRARY
FISH & WILDLIFE SERVICE
PACIFIC OCEANIC FISHERY
INVESTIGATIONS
JAN 8 195

PAN-AMERICAN fisherman


Engravings in this book by - -
Sunset ENGRAVING Company
COPPER HALF-TONES · ZINC ETCHINGS · EMBOSSING DIES
820 THIRD AVENUE Franklin 6611 SAN DIEGO 1, CALIF.

PAN-AMERICAN *fisherman*

NEWSmagazine of PAN-AMERICAN FISHERIES
combined with the magazine TUNAfisherman

MAIN OFFICE
205 Broadway Pier Bldg.
San Diego 1, Calif — Phone F-7328

A Journal Published Monthly
Serving the Pan-American Fisheries

A Marine Press Publication

President.....Cosimo A. Cutri
Publisher.....John T. McInnis
General Manager.....John S. Lusitana
Editor.....Bradford M. Mishler
Advertising.....Fred Walters, Len Mangum
Photographer.....George Eacobellis

BOARD OF DIRECTORS
Cosimo A. Cutri - Louis De Falco
Cecil W. Drake - Joseph Medina - M. O. Medina
John T. McInnis - Mathew C. Monise

Volume 5 No. 6

TABLE OF CONTENTS

EDITORIAL 11
NORTH PACIFIC TRENDS 11
EBB'N FLOW 13
THE SARDINE 15
SHRIMP 17
"MISTER QUALITY" 18
REVIEW 20
GREETS THE FLEET 22
PRESS-O-GRAMS 27
GLOBE 29

FOREIGN BUREAUS

Honolulu, T. H.; Anchorage, Alaska; Sydney, Australia; Mexico City; Lima, Peru; Balboa, Canal Zone; Capetown, S. Africa; Tokyo; Ensenada, Mexico; Tijuana, Mexico.

DOMESTIC BUREAUS

Portland Oregon; Seattle, Washington; Coos Bay, Oregon; San Francisco, Los Angeles, San Pedro, San Diego, Monterey, California; Aberdeen, Washington; New York City, Washington, D. C.; Boston, Massachusetts.

The magazine PAN-AMERICAN Fisherman, combined with TUNA Fisherman, is published monthly in Calif. Editorial and executive offices are at 205 Broadway Pier Building, San Diego 1, California. Radio-telephone identification, "PANAMAG." Telephone FRANKLIN 7328. Subscription, U. S. and Poss., 1 year $3.00, 2 years $5.00, 3 years $7.00 and single copies 35c. Entered as 2nd class matter, February 19, 1948, at the Post Office at San Diego, Calif., under the Act of March 3rd, 1879. In case of a change of address, subscribers are asked to notify Circulation Department, Pan-American Fisherman, 205 Broadway Pier Bldg., San Diego 1, Calif., within 10 days.

ABOUT THIS ISSUE:

WE have with us this month a new editor, Bradford M. Mishler. He is not new to the San Diego area as for many years he lived part of the year in La Jolla. Many a youthful day, he says, he roamed the embarcadero, absorbing the flavor of this busy fishing port.

After graduating from Pomona College, Brad worked as a research assistant in the fishery investigations laboratory of the U. S. Fish and Wildlife Service at Stanford University. His duties there put him in direct touch with the fishing industry. He took part in the expanded cooperative sardine research program in which the Fish and Wildlife Service is playing a leading role along with the California Division of Fish and Game, Scripps Institute of Oceanography, the California Academy of Sciences and the industry's Marine Research Committee.

Brad then enrolled in the Stanford Graduate School of Business to take special courses in marketing and foreign trade. Here he worked on several commercial fisheries problems. He wrote a very comprehensive survey of the Brazilian fishery industry as a foreign trade problem. This survey is to be published in a periodical. Brad also made an analysis of a San Francisco sardine company and wrote up a report making recommendations to the management as to the best probable methods of introducing a new fishery product on the market.

Our new editor belongs to various scientific and commercial fishery societies.

The staff of the *Pan-American Fisherman* wishes you the best of luck, Brad.

John S. Lusitana,
General Manager

•

To many people up and down the Pacific Coast the work of the Cooperative Sardine Research Program is not fully known. In this issue, Dr. Elbert H. Ahlstrom and the staffs of the cooperating research institutions on Point Loma in the Scripps Institute of Oceanography Field Annex, have written an article on the Problems and Objectives of the Cooperative Sardine Research Program. It is a comprehensive and highly readable report. *Pan-American* readers will find it interesting.

Dr. Ahlstrom is in charge of the Point Loma field unit of the South Pacific Fishery Investigations of the U. S. Fish and Wildlife Service.

Accompanying the article are three splendid photos taken by the Scripps Institute of Oceanography.

•

Over in Coronado a father and son team are operating a busy boatbuilding and repair yard. Pete and Bud Rask have been in the boat business practically all their lives, In next month's issue will be an article describing the background and activities of this yard that has only within the past few years established itself on the eastern shore of Coronado. It's the story of a family who have passed on shipbuilding skill down from one generation to another. Down the ways comes another success story.

•

On a following page is an editorial titled *The Task Ahead* which presents the future editorial course of the *Pan-American Fisherman* Magazine.

•

Keeping track of Earl Nielsen's activities during these past few months has been something like trailing a will o' the wisp through a wind tunnel. So late as August, 1950, as a matter of fact, he told the Southern California press that he was, upon leaving High Seas Tuna Packing company in San Diego, California, intent on going into business for himself. This turned out to be correct, down to the last detail, and the result was more or less history before the end of October. What the press didn't know, however, was that Nielsen had another ace up his sleeve.

Take advantage of National Steel's shipyard "know-how" and modern facilities to

MAKE MONEY ON THE BEACH, TOO!

EVERYTHING IN ONE PAVED YARD SAVES YOU TIME AND MONEY

WHETHER you need a new boat or repairs on your present one, come to the MOST MODERN AND COMPLETELY EQUIPPED shipyard on the Pacific Coast.

- 7 marine railways
- 9 outfitting docks
- San Diego's only galvanizing plant
- The west's most modern foundry
- Complete woodworking shop
- Experienced engineering staff
- Complete machine shop
- Fully equipped electric and welding shops
- Complete refrigeration maintenance and engineering
- Wet or dry sandblasting facilities
- Huge pattern shop
- Steel fabricating shop

NATIONAL STEEL AND ★ SHIPBUILDING CORPORATION

HARBOR DRIVE AT 28TH • FRANKLIN 9-8065 • SAN DIEGO 12

BELLEANNA
BRAND
FROZEN FISH

PRODUCED BY THOSE
WHO KNOW HOW!

**Belleanna Chillets are frozen fresh as the morning,
QUICK-Frozen in plants and packages modern as tomorrow
—Meeting standards of excellence and traditions of quality
Developed in 83 years of honest dealing in the fish business.**

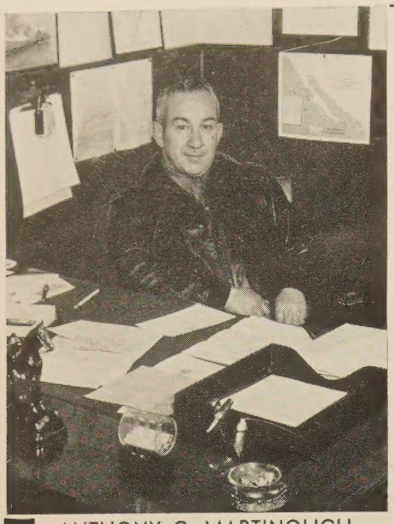
CHILLETS

NEW ENGLAND FISH COMPANY

SEATTLE, WASHINGTON

"Since 1868"

NEFCO Fishery



ANTHONY C. MARTINOLICH

. . . And Now

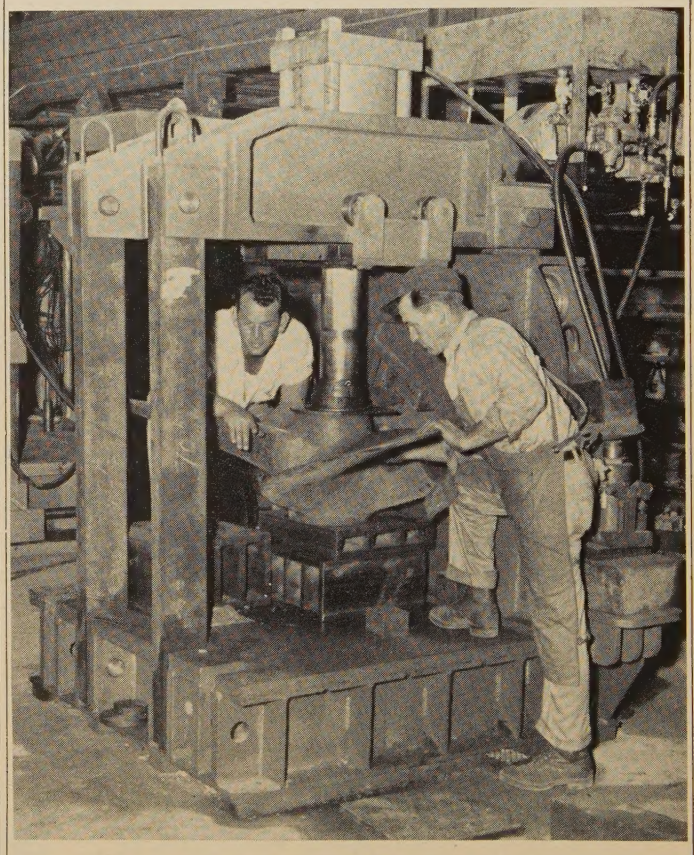
For the First Time on the Pacific Coast . . .

The MARTINOLICH *PROPELLER PITCH BENDER!*

The Martinolich propeller pitch bender is the only hydraulic instrument of its kind on the Pacific Coast. Installed at a cost of more than $25,000, it's the biggest hydraulic pitch bending machine in the United States! The installation itself involved two units, weighing collectively more than 18 tons! A creation of Master Mechanic George Wildt of Miami, Florida, it will:

- **Eliminate 1 to 3 days drydock tie-up.**
- **Save you freight charges to and from Los Angeles.**
- **Insure a maximum "pull" of your wheel.**
- **Afford the maximum of efficiency, thus saving fuel.**

THE MARTINOLICH PITCH BENDER IN ACTION



Nobody—*But Nobody*—
can do it BETTER, FASTER
or CHEAPER than . . .

MARTINOLICH SHIPBUILDING CO.

2475 Belt St. **SAN DIEGO, CALIFORNIA** **FR. 9-2138**

Season's Eatings!

PARDON US - we meant to say
SEASON'S GREETINGS

BREAST O' CHICKEN

the brand that brings you only the best o'tuna

Replacement or Refund of Money
Guaranteed by Good Housekeeping
If Not As Advertised Therein

Best o' wishes from all o' us at WESTGATE-SUN HARBOR CO.

Season's Greetings

CALIF. TUNA CANNING CO.

PACKERS OF FINER SEA PRODUCTS

2305 EAST BELL ST. SAN DIEGO, CALIF.

SAN DIEGO PACKING CO.

PACKERS OF FANCY QUALITY TUNA

1590 SOUTH 28th STREET SAN DIEGO, CALIF.

Packers of . . .

- SEAPREME
- BUY WELL
- SEA LUSCIOUS

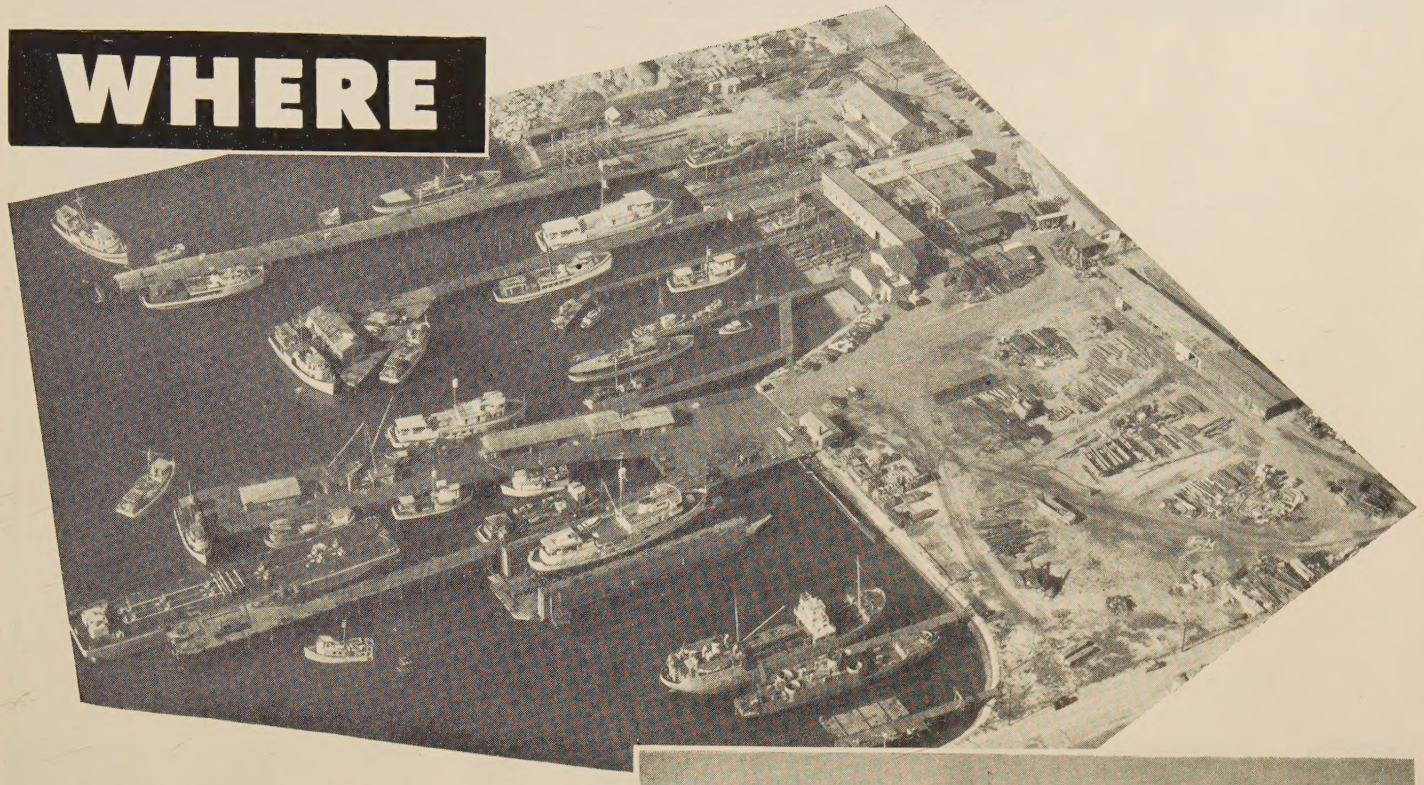
Packers of . . .

- SERV-MOR
- N&R
- CAL-QUEEN

Your Choice Once - - -

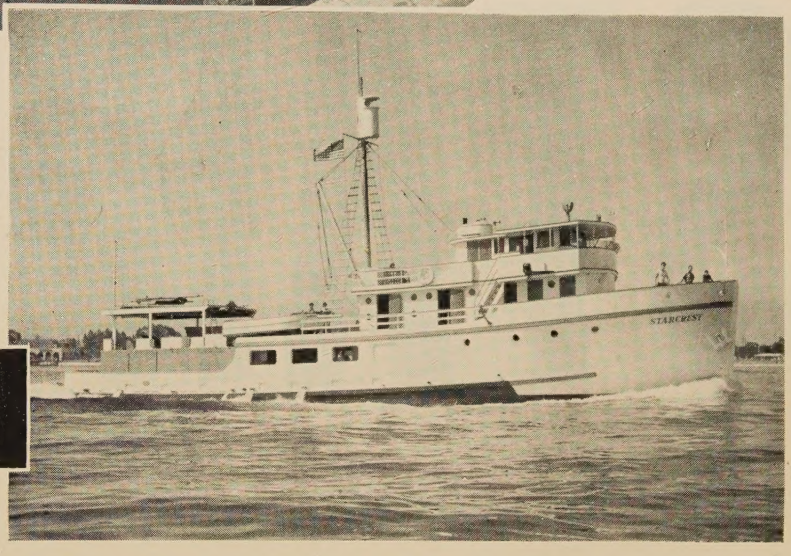
Your Choice Always.

WHERE



In San Diego at the foot of Sampson Street: The San Diego Marine Construction Company, occupying 809,-518 square feet, is equipped with eight marine ways, floating dry dock and complete shipbuilding and repair facilities.

WHAT



The tuna clipper STARCREST is typical of the 124 vessels built by San Diego Marine. The STARCREST has all the qualities of seaworthiness and sturdiness which mean faster and safer trips to and from fishing grounds—more profit per trip . . top performance.

WHY

We have built and repaired ships for 32 years. This experience combined with modern methods gives to you, the boat owner, all of the advantages of "Know How" for fast and efficient service. The workmanship of our skilled craftsmen is recognized as the finest.

SAN DIEGO MARINE CONSTRUCTION CO.

O. J. HALL
General Manager

WAYNE JOHNSON
Yard Manager

FOOT OF SAMPSON STREET

SAN DIEGO, CALIF.

Merry Christmas

Happy New Year

from the packers of

STAR-KIST

FRENCH SARDINE CO.

and

HIGH SEAS PACKING CO.

Factory
2121 DIESEL STREET
OAKLAND 6, CALIFORNIA
PHONE KELLOGG 2-7070

Branch
4640 COLLEGE AVENUE
SAN DIEGO 15, CALIFORNIA
PHONE RANDOLPH 8370

Pacific Coast Representatives

ALASKA & WASHINGTON
APEX CO.
3101 SMITH TOWER
SEATTLE, WASHINGTON

BRITISH COLUMBIA
BURRARD IRON WORKS
235 ALEXANDER STREET
VANCOUVER, B.C.

SAN DIEGO
CAMPBELL MACHINE CO.
FOOT EIGHTH AVENUE

LOWER CALIFORNIA
(also Guaymas)
L. C. BADOVIN
LA PAZ, B.C., MEXICO

Service Availability

"UNION Diesel service is available to all owners and operators 24-hours per day and 365 days per year. Person-to-person telephone calls to 'Emergency Service' KEllog 2-7070 in Oakland or to Randolph 8370 in San Diego will enable you contact a competent individual who will give your problem immediate and personal attention. This long established policy provides you with available emergency parts and service within a few hours on weekends and holidays as well as during our normal work week. "UNION Diesel service men of factory quality may be obtained for service work on your job. No installation is too remote; nor project is too large; no adjustment is too small. Consultation available without obligatin.

"Even though this policy was originally intended for UNION engines only, it is now offered for all engine and engineering services and parts."

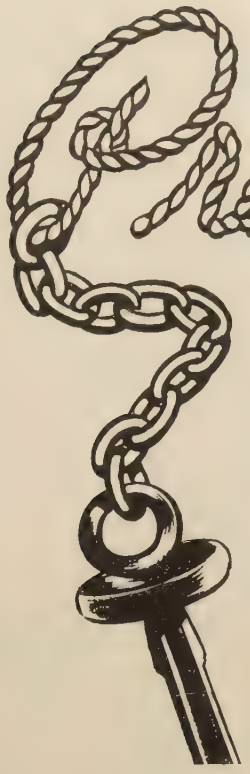
The UNION DIESEL ENGINE *Company*

Established 1885

2121 Diesel Street, Oakland 6, California, U. S. A.
Cable Address: UNIGAS

Codes: A-1, Liebers' Standard, ABC-Fourth Edition, ABC-Fifth Edition, Engineering-Second Edition, Western Union-Universal Edition, Western Union-Five Letter Edition, Bentley.

Protection FOR SALE

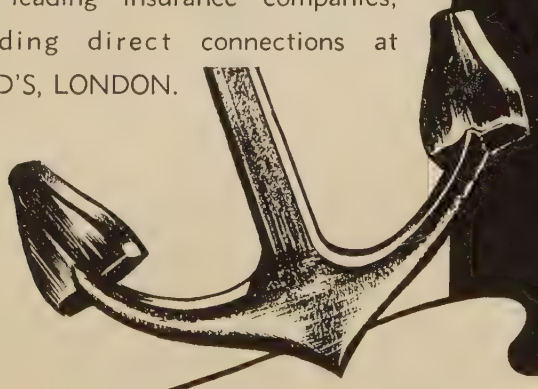


For over half a century Hansen & Rowland, Inc. has been offering specialized insurance service, and represents leading insurance companies, including direct connections at LLOYD'S, LONDON.

ALL FORMS OF INSURANCE FOR THE FISHERIES TRADE

★

Cargo
Hull and Machinery
Protection & Indemnity
Employers' Liability
Workmen's Compensation
Fire and Lightning
Profits



HANSEN & ROWLAND, INC.

H & R INC 1890

GENERAL AGENTS

TACOMA
SEATTLE • PORTLAND
SAN FRANCISCO

EDITORIAL

THE TASK AHEAD

The PAN-AMERICAN FISHERMAN is ready to start a new year. It is an opportune time to re-evaluate the role this magazine plays. It is also time to look ahead and lay plans for continuing the growth of our magazine. The task ahead is challenging. There are important trends and programs pending that would vitally affect the tuna industry. We shall not stop at presenting news of importance to this great fishery industry. We expect to increasingly present to our readers pertinent information on other important fisheries such as the sardine, salmon, mackerel, halibut and herring.

It is to be a policy of PAN-AMERICAN FISHERMAN to look into the many federal, state and private fishery investigatory organizations that are making ever-increasing efforts to discover facts of benefit to the fishery industry. There is a constant stream of printed matter and a wealth of unpublished material covering the various aspects of the industry: biological, technological and economic.

Fishery businessmen sometimes do not have the time to pore over the numerous, and often times, technical progress reports, journals, periodic publications and monographs of the agencies and institutions actively engaged in seeking new information.

Scientific knowledge used in connection with the utilization of fishery resources helps to insure the highest continuous production at the lowest cost that these resources can yield without impairing their productivity. This knowledge also finds ways of improved preservation and utilization of fishery products.

The results of some of the investigations conducted by fishery research organizations may cast new light on the utilization and maintenance of existing fisheries and give hints to the possibilities of development of latent fisheries.

Summarized information from these organizations will be presented in this magazine in an understandable, concise fashion. Emphasis will be on the facts and findings which would prove useful to the fishery industry of the Pacific Coast.

We want to keep in close contact with our readers. Your comments and suggestions will be most gratefully received.

We aim to give complete coverage of the fishing industry of the Pacific Coast—and to present news that is reliable and timely.

It is to be the editorial policy of the PAN-AMERICAN FISHERMAN to work for the betterment of the fishing industry. We will work constantly for cooperation between all factors in the industry.

We have a job ahead—with your support we will be able to fulfill all of your expectations of this magazine.

The Board of Directors of PAN-AMERICAN FISHERMAN and the staff of the magazine wishes the fishing industry the best of luck, loads of success and smooth sailing during the new year.

THE COVER

The 106-foot CHALLENGER, owned and operated by Star and Crescent Boat Company, San Diego, California. One of the most powerful craft of its kind on the Pacific Coast, it was built by San Diego Marine Construction Company. The picture was taken by Larry Booth, Allied Craftsmen.

NORTH PACIFIC TRENDS

Tuna Fishery: Following a slack period, albacore tuna landing at Oregon ports increased during the early part of October. Schools of large-size albacore were reported off the coast of northern California late in September. Many Washington and Oregon boats followed the run (said to be one of the largest in years.) The albacore were found chiefly south of Eureka, California. Some of the albacore weighed as much as 35 pounds, with the average size around 14 pounds, in contrast with last year when small size albacore appeared in the same region late in the summer. Jig boats continued to take most of the tuna, and even vessels using live bait have reported their catches were taken chiefly by trolling. Although a few large catches have been landed in Oregon by live-bait boats, the tuna have usually not schooled enough to allow the successful use of live-bait fishing.

In addition to direct landings by these vessels at Astoria, Oregon, tuna was shipped into that port from California ports by trucks which brought as much as 200 tons daily. This late tuna run will keep some of the plants at Astoria operating for some time.

Salmon Fishery: Because of the short salmon pack, both in Alaska and the States, prices of canned salmon have advanced at wholesale and retail.

A recent improvement in the catches of chum and silver salmon has resulted in a total Puget Sound pack through the week ending October 7 of 177,273 cases of all species of salmon. The commercial season for Puget Sound is scheduled to close November 30 and will doubtless total than half that of last year (which exceeded 900,000 cases). Current prices to the fishermen in the Puget Sound area are 17 cents per pound for chum salmon, and 25 cents for silver salmon. Approximately 500,000 pounds of chum salmon has been imported weekly from British Columbia for canning at Puget Sound plants.

Light catches of salmon by gill-netters on the lower Columbia river indicate that most of the chinook run had passed upstream during the closed period. Catches made by boats fishing upriver for salmon averaged about 600 pounds during the first night or so. However, dip-netters at the falls have taken about 1,500,000 pounds of salmon following the reopening of the season. By mid-October river fishing was quite slack with only silver and a few chum salmon being taken. Recent prices for fall chinook salmon on the Columbia river have ranged from 15 to 20 cents per pound to the fishermen, depending largely on the quality of the fish, which varies considerably at this time of year.

Trawl Fishery: Winter prices for otter-trawl-caught fish recently were negotiated for both the Puget Sound and Columbia River fleets. Prices in Washington represent increases of from ½ cents for rockfish to 3 cents per pound for lingcod. New prices for the more important species in cents per pound are: Petrale sole 9; English sole 6½; flounder 5; black rockfish 4; red rockfish 5; dressed lingcod 9; dressed true cod 7; while dressed sable fish remains unchanged at 10.

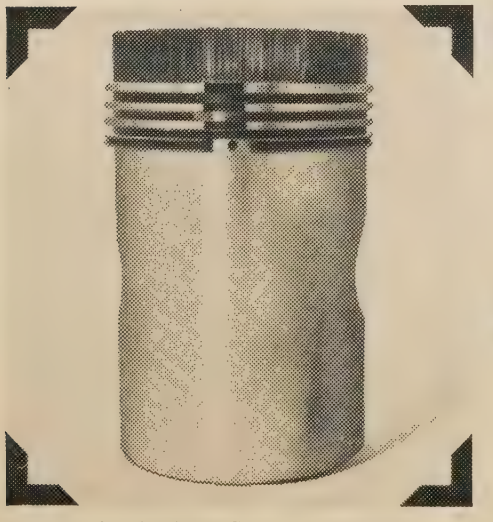
Prices in Oregon were increased from ½ cent per pound on black rockfish to 2 cents for sablefish, while the price for Dover sole remained unchanged at 4 cents per pound. The prices agreed on have thus far been accepted by only one filleting firm, but it is anticipated that other packers will meet these new prices (in cents per pound): Petrale sole 7; English sole 5; Flounder 3½; black rockfish 3½; red rockfish 4½; sablefish 10; lingcod 6, and rex sole 4.

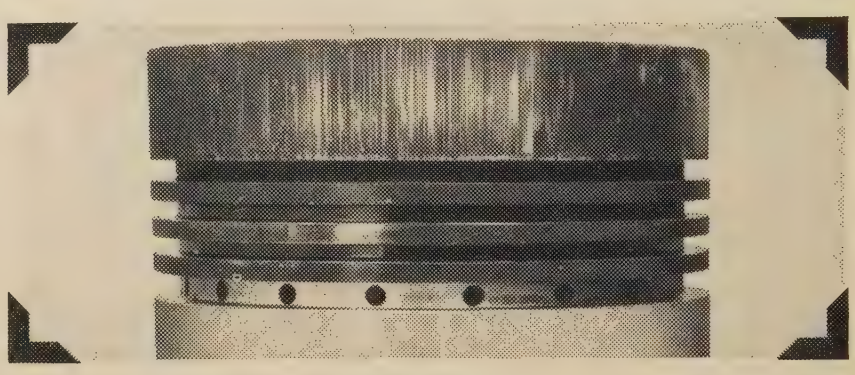
STANDARD ENGINEER'S REPORT

DATA

LUBRICANT	RPM Delo Oils
UNIT	Caterpillar D13000 diesel
OPERATION	Operating 75 KW generator on ship
CONDITIONS	Constant speed – varied loads + temp.
PERIOD	2119 hours
FIRM	Tuna Clipper – "Lusitania" San Diego, Calif.

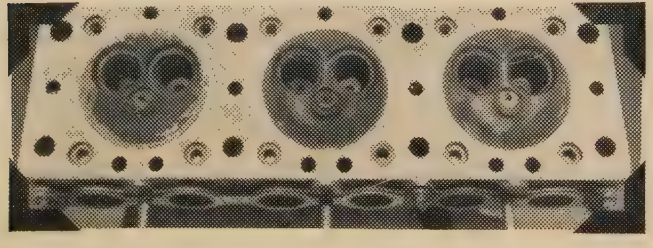
Ring-sticking stopped, wear reduced in auxiliary engine





ONLY 0.0002 INCH WEAR PER THOUSAND HOURS was the average wear-rate on cylinders in the engine during the 2119-hour run, although usual drain periods were extended to 1000 hours. Oil temperatures averaged 175° F. to 180° F. Note the open oil-return holes and grooves (above) and lacquer-free piston skirt (left).

AFTER 2119 HOURS on RPM DELO Supercharged-2 Lubricating Oil, this representative piston from a D13000 Caterpillar indicates the clean condition of lubricated parts of the engine. All 24 rings in the engine were free!



CYLINDER HEAD from the engine after the run. RPM DELO Supercharged-2 is recommended specially for heavy-duty engines where fuel-sooting or other deposits, high temperatures or other conditions cause operational problems and wear.

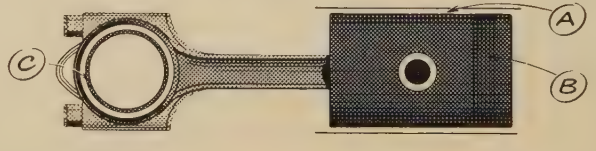
REMARKS: There is an RPM DELO Oil to meet every heavy-duty engine lubricating condition:

RPM DELO Heavy Duty
RPM DELO Special
RPM DELO Supercharged-1 Oil
RPM DELO Supercharged-2 Oil

RPM DELO LUBRICATING OILS

TRADEMARK "RPM DELO" REG. U.S. PAT. OFF.

How RPM DELO Oils keep engines clean and prevent wear



A. Contain special additives that provide metal-adhesion qualities...keep oil on parts whether they are hot or cold, running or idle.

B. Anti-oxident resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean, helps prevent scuffing.

C. Special compounds stop corrosion of any bearing metal, and oil foaming in both wet and dry sump engines.

STANDARD TECHNICAL SERVICE checked this product performance. For expert help on lubrication or fuel problems, call your Standard Fuel and Lubricant Engineer or Representative; or write Standard Oil Company of California, 225 Bush St., San Francisco.

STANDARD OIL COMPANY OF CALIFORNIA

PAN-AMERICAN
fisherman
NEWSmagazine of PAN-AMERICAN FISHERIES

EBB 'N FLOW

DECEMBER
1950

Canneries, Off-Shore Discoveries

BUSINESS AS USUAL

Tuna Tie-up:

San Diego's tuna cannery strike of seven weeks duration ended October 31. A new contract between four companies and the A.F.L. Cannery Workers was signed at a mediation meeting, conducted by V. Yayne Kenaston, U. S. labor conciliator.

The pay increase of ten cents an hour is retroactive in full to September 1 and in half to July 1.

The four strikebound canneries, Westgate-Sun Harbor, High Seas, San Diego and American Processing Company resumed full operations within a few days after the settlement.

Certification elections were conducted at the plants by the National Labor Relations Board. The employees' choice was between the A.F.L. which has represented them for years in collective bargaining and the Independent Food, Tobacco and Agricultural Workers Union.

The whole dispute commenced six months ago and after four months of bargaining which proved futile, Dr. Ordean Rockey, resident U. S. labor conciliator came into the case. However, Mr. Kenaston from the San Francisco office of the N.L.R.B. was ordered into the case to replace Dr. Rockey.

After ironing out the final issue under discussion, the final contract was signed soon after 9:00 o'clock on October 31.

An interesting sidelight is that the mediator, Mr. Kenaston, is a former resident of San Diego. He lived here for 23 years, and for a part of this time he was business agent of the A.F.L. Iron Workers Union.

The first clipper to discharge tuna was the *Northern Light*. It discharged its cargo at the High Seas Packing Company, Roseville. Fifteen other boats unloaded at other plants.

Six tuna clippers unloaded at the West Coast Packing Company. Westgate-Sun Harbor was prevented from resuming operations for a few days because of boiler trouble.

The Van Camp cannery had fourteen boats waiting to unload a total of 500 tons of fish. Van Camp had to curtail operations because of the shutdown of the American Processing Company which takes a large portion of its fish residue.

The clipper *Westgate* arrived in San Diego September 20 with a load of 115 tons of tuna and since that time has been tied up at the embarcadero with its load of refrigerated fish.

A few days after the tie-up was settled three clippers set sail for the fishing banks. They were the *Marie Louise*, *Conte Bianco* and the *City of San Francisco*.

IMPORTS

Peruvian Swordfish

Tremendous interest on the part of the public as well as the fisheries trade greeted the arrival by chartered vessel of the largest shipment of swordfish ever received in this country.

The M/S *Spicewood* landed in New York harbor October 26, with 360 tons of frozen swordfish and 85 tons of frozen tuna, shipped from Peru by Wilbur-Ellis Company, for distribution to eastern United States markets.

The shipment of big fish was featured on six television shows in New York City, as well as receiving publicity from newspapers, radio commentators, shipping reporters and food editors.

Consumption of swordfish, in a growing number of cities, has increased so rapidly that refrigerated space on steamship lines could not accommodate the shipments, so Wilbur-Ellis Company arranged for the *Spicewood* charter. Annual consumption is 3,500 to 4,000 pounds.

Wilbur-Ellis Company has pioneered the catching and freezing of swordfish off the Peruvian coast. In these waters the fish run from 100 to 1,000 pounds. They are harpooned from small boats, and immediately cleaned and frozen on the mother ship under the direction of American technicians.

Southern Seas Swordfish is one of

(*Continued on next page*)

M/S Spicewood

Landed in New York recently from Peru with the largest shipment of swordfish ever received in this country.

the principal imports of the Wilbur-Ellis Company, which also include Southern Star canned bonito.

SOUTHERN CALIFORNIA

Big Haul:

A fleet of a hundred purse seiners from San Pedro caught over 4000 tons of sardines in about three hours on the night of November 2. The value of the catch is estimated to be around $140,000.

The fishermen reported tremendous sardine schools. It was one of the most profitable hauls ever made off Point Loma. The fishing boats operated along the 25-fathom curve one-half mile west of the headlands.

None of the sardine laden boats came into San Diego. At present there is only one plant in San Diego using sardines and that is the fish meal and oil plant of the American Processing Company.

Fuel to the Fire:

Meanwhile, pressure from catches, excessive inventories and a huge supply of sardine at two Southern California canneries added to the unrest in the industry. Early in the month, Don Loker, General Manager of High Seas Tuna Packing company, San Diego, California, announced in a letter to both French Sardine Company and High Seas tuna clipper captains that vessels arriving in both ports after November 1 would be tied up indefinitely. "I've got too much fish on hand," Loker said. "But I don't think the tie up will last long."

Wade Ambrose, President of Westgate-Sun Harbor Company, was the first industry figure to express surprise. For the time being, he explained, his firm had no intention of following suit. California Tuna Canning Company and San Diego Packing Company, headed by Earl M. Nielsen, went along with Ambrose. In fact, Nielsen launched forth on one of his favorite topics: Lack of education among the consumer public. "We have," he said, "been fortunate in keeping production and sales on a comparable level with catches. Certainly, for the time being, we shall not be forced to this issue. But I say it now as I have said it before, what our industry needs badly is an overall national seafood educational and advertising campaign, in which all segments of our industry must participate."

INVESTIGATIONS

Off-Shore Discoveries:

The Motor Vessel *N. B. Scofield* of the California Division of Fish and Game landed October 26 at Los Angeles Harbor after a four week cruise along the California Coast from Trinidad Head to Pismo Beach.

The cruise was divided into two parts. The objective of the first part was the tagging of lingcod, black cod and flatfish in the area between Monterey Bay and Cape Mendocino. In addition a study of the paleogeologic and zooecologic relationships of the submarine canyons off northern California and the submarine bluff off Punta Gorda were contemplated in cooperation with scientific personnel of the California Academy of Sciences. The objective of the second part was the assessment of suspected prawn populations off the Morro Bay-Pismo Beach area, combined with a study of the faunal relationships of the prawn beds. The most important phase of the cruise, the study of the extent of prawn beds off the Pismo Beach area, was successful. A bed some eight miles long and one and one-half miles wide was discovered and explored. Several hauls were made at night but no appreciable quantities of prawn were taken. However, hauls made during daylight

hours resulted in catches of about 100 pounds of shrimp in a half-hour drag with the 10-foot experimental beam trawl. A resource of some importance awaits development. Further study of the economic possibilities is contemplated.

In addition it was planned to study the validity of bottom sampling techniques and to collect fish for a mortality study. This work was also to be conducted in cooperation with scientific personnel of the California Academy of Sciences and Stanford University.

Seventy-one bottom stations were made representing a total of over 80 drags. A total of 250 bottom fish were tagged. Flatfish were scarce due to a very heavy groundswell disturbing the onshore banks and making trawling operations difficult. Dense fog for major portion of the trip made extensive trawling hazardous. A deep sea tow net and plankton cast was made off Cape Mendocino reaching a depth of over 600 fathoms (3600 feet).

Specimens of the geologic formations of Spanish canyon, Delgada canyon, Punta Gorda submarine bluff and Monterey canyons were obtains. Extensive collections were made of the animals of these deeps and of the coastal shelf along northern California. Preliminary inspection of the material by the Academy of Sciences reveals that there were several new species of mollusks discovered; a parasitic foraminifera was found attached to the lamp shell, the likes of which have heretofore never been known; the extension of the range of many species of fish and other animals into California waters and the discovery that many animals previously considered rare are abundant in suitable environmental conditions. As a matter of note, it should be pointed out that the offshore life of the region between Point Arena and Cape Mendocino is relatively unknown to science. Several hundred fish and animals were collected and delivered to the Steinhart Aquarium for mortality experiments and to study the tagging survival of the bottom fish.

TERMINAL ISLAND

Cooperative Project:

Contracts for construction of a $1,000,000 central steam plant were awarded November 2, by Terminal Island sea food canners to two Long Beach concerns, M. A. Nishkian & Co., consulting engineers, and Ofcco Construction Company, power plant specialists.

The large building to be erected at Cannery and Ways Streets, will contain four large steam generators and auxiliary equipment to be used in cooking fish and other industrial purposes.

The financiers and operators of the plant are the California Marine Curing and Packing Company, South Coast Fisheries Inc., French Sardine Co., Van Camp Sea Food Co., and Terminal Island Sea Foods Ltd. The tentative name of the newly organized firm is Canners Co-operative Steam Co.

Construction probably will not get under way until next April.

U. S. FISHING FLEET

Additions:

A total of 69 vessels of 5 net tons and over received their first documents as fishing craft during September 1950 —8 less than in September 1949. Louisiana and Florida led with 11 vessels each, followed by California and Texas with 8 vessels each.

During the first nine months of 1950, a total of 671 vessels were documented, compared with 804 during the same period in 1949.

Forty-eight of the vessels receiving their first documents as fishing craft during September were built during 1949 and 1950. The remainder was built prior to 1948.

The Sardine In Its Environment

A Popular Account of the Objectives of the Pacific Coast Sardine Research Program

By DR. ELBERT H. AHLSTROM
with assistance from many persons working on the Cooperative Sardine Research Program

•

THIS article is not one of the regular series of quarterly progress reports on the cooperative sardine research investigations; it is intended as a supplement to these reports and to provide some background information. The latter, because they summarize the research being carried out during a portion of a year only, have emphasized details of the research rather than the reasons for doing it. This article is intended to fill the gap by setting forth some of the problems and objectives of the cooperative sardine research investigations.

The contributions of the four cooperating agencies, the Scripps Institution of Oceanography, the U. S. Fish and Wildlife Service, the California Division of Fish and Game and the California Academy of Sciences are summarized in the progress reports, agency by agency. Inasmuch as most of the research is truly cooperative, two or more agencies working together in the study of most problems concerning the sardine, the writers of the present report have thought it advisable to center their attention on the problems being investigated, rather than on the agencies doing the work. However, a very brief resume of the activities of the four cooperating agencies seems desirable in this introduction.

Oceanography

The oceanographic investigations are the primary responsibility of the Scripps Institution of Oceanography, although one of the three vessels taking part in the collection of oceanographic data at sea is operated by the Fish and Wildlife Service. Scripps Institution has divided their activities in the present investigation into five divisions: physical oceanography, chemical oceanography, phytoplankton, zooplankton and marine vertebrate studies. Physical oceanography is concerned with the distribution of temperature and salinity in the ocean, with the transport of water (horizontal currents), with mixing or diffusion processes, with the effect of tidal forces, and with the mechanism of upwelling (vertical currents). The physical oceanographers are not only concerned with the description of these processes, but also with determining the causal mechanisms behind the circulation in the ocean. Chemical oceanography is directly concerned with determining the distribution (both vertically and horizontally) of inorganic nutrients essential to plant growth. Determinations are being made of phosphate-phosphorus, which is one of the basic nutrient materials and an indicator of the distribution of other inorganic nutrients as well. Determinations are also being made of the distribution of dissolved oxygen in sea water: the determinations may give valuable information on 1) the process of upwelling, 2) the presence of large populations of marine plants, 3) the presence of large concentrations of oxygen consumers and 4) mixing processes in the surface layer (0-200 M) of the ocean. Phytoplankton research is concerned with assessing the "crop" of marine plants (particularly diatoms), the primary producers of foodstuffs in the ocean. The research also deals with the relation of fluctuations in the productivity of marine plants to physical

(*Continued on next page*)

Nansen Bottle

Being lowered from a vessel to obtain samples of sea water for analysis for chemical properties such as salinity and to record under-water temperatures.

and chemical processes in the ocean, particularly enrichment processes, and with the effect of these fluctuations on the animal populations. The principal objective of the zooplankton studies is to determine the significance of plankton in the life of the sardine, especially 1) as it affects the survival of the sardine larvae and 2) as it affects the distribution, movements and survival of the adult sardines. The division of marine vertebrates is cooperating with the Fish and Wildlife Service in the study of recruitment, is investigating several of the species of fish that compete directly with the sardine, particularly the anchovy and saury, and in addition is conducting some studies on productivity.

The recruitment research is the primary responsibility of the Fish and Wildlife Service, although it as also a cooperative program, especially in the collection of material and data at sea. The long range objective of this program is the determination of the factors underlying the success or failure of year broods of sardines. If this can be done, we should eventually be able to predict the strength of a year class fully 1½ to 2½ years in advance of its entry into the fishery. The more immediate objectives of the recruitment research may be summarized as follows: the determination of 1) the extent and time of sardine spawning, 2) the amount of spawning, i. e. the number of eggs spawned, and as a corollary, the estimation of the size of the spawning population, 3) the rate of survival of young fish resulting from the spawnings, and 4) the correlation of all the above with conditions in the physical, chemical, and biological environment.

California Division of Fish and Game

The California Division of Fish and Game is also working on one phase of the recruitment problem: an attempt to assess the abundance of each year class when about four to six months old. They plan, after doing exploratory work on distribution and on methods of consusing, to conduct an annual census of juvenile sardines on the nursery grounds. As a part of this program they are obtaining statistics on young sardines in the bait fishery of Southern California.

Studies on availability of adult sardines to the commercial fishery are also being made by the California Division of Fish and Game. They are concerned with the problem of why adult sardines are less available to the commercial fishery during some seasons than during others. The problem is basically one of sardine distribution: a study of the where, when, and why of sardine schools. To get at "where" sardines occur it is necessary to be able to locate schools of fish effectively and rapidly. Echo ranging and echo sounding gear on the MV *Yellowfin*, the vessel used in this research, have proven effective for this purpose. To determine the "when," surveys are being made throughout the year. The "why" involves the reasons for sardine distribution: this is primarily a study of the effects of physical and biological environmental conditions on the distribution of adult sardines.

Plankton Net

This net is being raised aboard a research vessel with the scooped up specimens of small animals and plant life trapped in the fine meshed netting.

Synoptic oceanographical data are being collected at the places where schools are found, and these will be correlated with the more extensive oceanographic data being collected by the Scripps Institution and the Fish and Wildlife Service. The problem of availability is treated in some detail later in this report.

Sardine Behavior

The behavior of sardines under experimental conditions in the laboratory is being studied by the California Academy of Sciences. The effects of such factors as temperature, currents, light, electric currents and salinity on the behavior of sardines, especially on their schooling patterns and movements, are being investigated. The results of these studies may aid materially in understanding the distribution of sardines in nature.

In addition, studies on the commercial catch have been conducted over a long period of years, and are continuing. Although this phase of sardine research will not be dealt with in the present report, it should be pointed out that the work involves a number of cooperating agencies: the California Division of Fish and Game, the U. S. Fish and Wildlife Service, as well as the Marine Fishery departments of Oregon, Washington, and British Columbia, and is a very important part of sardine research.

If we were to go exhaustively into all phases of the cooperative sardine research program, this report would be a very long, and perhaps dull affair. The ocean is a complex environment and its study involves many problems. Each of the divisions at the Scripps Institution engaged in this research has a group of problems peculiar to its own field. The same applies to the work of the other cooperating agencies. If such detailed accounts are desired, they should be prepared as separate reports by the individual agencies engaged in sardine research.

If the objectives of the cooperative sardine research program were to be condensed into a single sentence, we consider the following to be a fair statement of the problem: The cooperative sardine research program is studying the sardine in its environment in order to understand how this environment—physical, chemical, and biological—affects the survival of the sardines when young and their distribution (availability) when they are of commercial size. The research then has two primary facets: success of recruitment and availability. The account that follows will deal primarily with these two subjects. However, the problem of productivity will loom so large in the discussion that with equal justice this could be pointed to as the primary problem of our investigation.

This report is intended as a popular account. Because of this, we are including background information that would be omitted from a scientific treatment of the same subject. Often the picture has been simplified, but we trust not overly so. Also we have not labeled all controversial subject matter as such.

Spawning Survival

Much of the research being conducted by the Scripps Institution of Oceanography and the Fish and Wildlife Service in the cooperative sardine research program is directed toward determining the causes underlying the success or failure of year broods of sardines.

To obtain data on this problem, the cooperating agencies are investigating month by month a very extensive area off our coast, extending from Abreojos Point, Lower California, in the south to the Columbia River in the north and

(*Continued on page 32*)

The 1950 TEXAS SHRIMP Picture

By STUART ALTON

SPARKED by a run of "whites," which began about September 15, Texas shrimp production, especially in the Rio Grande area, took another upward leap, added to an already astonishing all-time high for the 1950 season. Before advent of the white shrimp in such quantities, however, brown and pink shrimp had dominated the activity, and processing of these, as late as last month, had caused processors to groan under the weight of the delectable ocean morsels that converged upon them in seemingly inexhaustible consignments. Not the least of inconveniences generated by this deluge, of course, was the shortage of storage space, and, added to this, there came the inevitable price drop, the backwash of all such projects involved in overproduction. Boatmen, indeed, faced a drastic price reduction for raw shrimp overnight at the beginning of the big run; the price per pound for shrimp, premium and headless, skidded downward twice in one week during October.

The first cut, however, came late in August. Around the 25th of that month, in fact, 15-20 count white tails dropped from 30 to 28 cents. Then, on September, an additional two-cent drop in price struck the boatmen. The price on all varieties, quite naturally, was trimmed from top grade to the high count when applied to the shrimp fleet.

This price action, according to a Texas Fisherman's Association authority, was a much-needed operation, although something of a disappointment to shrimpers. The primary reason, he advised, was to apply some relief to small dealers who had been spiked in a financial bind, i. e., they had quoted previously such rock-bottom prices that they were taking a licking, financially speaking, on some sizes. Relief, it was indicated in sundry circles, had to be extended, otherwise dealers could not take on more shrimp. This was for the reason that they were hampered from moving the stuff at prevailing prices, as the big buyers had turned a cold shoulder to further production at the prices then in force.

Boatmen, however, were dumping pink shrimp, a species somewhat different to the Brazilian, for the identical price as that offered for the brown shrimp. The latter were being put up from all-point sectors of the State, although the pink came, in the main, from the Campeche area. White shrimp, by and large, were caught in the territory adjacent to Corpus Christi, North and East.

MEANWHILE, the Texas license question added to the flurry of industry ins and outs, ups and downs, for the 1950 season, with no easement suitable to all factions apparently in sight. Fishermen were, for the most part, genuinely alarmed because attorneys' fees and court costs were piling up unabatedly. The situation was doubly discouraging, as one fisherman put it, since failure of the Game Fish and Oyster Commission's boost of the license quota to 2325 from 1550 had failed to stick. Reason behind it was a suit filed by the Texas Fishermen's Association, seeking to bog down the Commission's program for issuing licenses. The petition was granted, as is well known by now, and a temporary injunction was issued. This had the effect of beaching many of the area's fishermen. Prior to the date on which the 98th District Court had granted the Texas Fishermen's Association suit, there were an estimated 1,000 licenses issued, it was reliably reported. The Commission, TFA held, had over-stepped its authority in boosting the license quota. August 31 was supposed to have been the date set for the dissection and action on the plea. However, before it got underway a postponement cropped up, setting it back to September 11, and later, another postponement shifted it to September 25. (By this time, of course, proceedings, which were to have taken place in Austin, Texas, may have gone over.)

Increase in the license quota grants by the Texas Game, Fish and Oyster Commission was announced on July 7, and, at the time, the organization released figures disclosing an increase in shrimp production for Texas that startled even the most optimistic. The take, as a matter of fact, had, according to the Commission, skyrocketed from 15,000,000 pounds in 1948, to more than 28.5 million pounds in 1949. Therein, needless to say, lay the justification for the Commission's licensing action. The quota increase, which had been granted, naturally, with a thought toward conservation, unrestrictedly deserved a fifty per cent increase in boat licenses.

THE Fishermen's Association, however, had a different idea, at least according to interpretation in some quarters. It's suit alleged that the maximum point of production for edible acquatic life in Texas waters would be jeopardized, as the result of the increase. Moreover, failure of the Commission to find out the maximum poundage of edible acquatic life which could be hauled in without threatening maximum production was further alleged by the suit. The Commission, TFA further alleged, had acted on the basis of poundage quantities caught in months previously. The quota for commercial fishing boat licenses was boosted, mainly, to meet the demands of 412 applications in addition to the old figure of 1,550, TFA further charged. "Such increase would be without regard for conservation standards," the suit asserted.

But the Commission had its side of it, too. The Texas Game, Fish and Oyster Commission, empowered by Texas State law, is permitted to determine the quota of commercial fishing boat licenses for each year set aside for conservation. September 1, 1950, of course, was one of these years. The commission determines the quotas following a probe into maximum poundage of shrimp and oysters taken the year previous, with a thought, as a salient point, toward conservation standards. Coincident with the suit's success, Howard Dodgen, the Com-

(*Continued on page 47*)

SILHOUETTE

President and Chairman
Earl M. Nielsen

•

By JOHN SPRINGER

"Miste

Earl Nielsen Began Stumping for Topnotch and the Idea M

THIRTY years ago, when Earl M. Nielsen, a shrewd, thoughtful, wiry Norwegian-American, was a young executive working up in the commercial fishing industry with the old Point Loma canners near San Diego, California, the food editor of a local newspaper telephoned his plant one day out of curiosity, and, in the course of conversation with an office employe, she referred to him as "Mister Quality." At the moment, no compliment could quite have pleased him more. The lady, it developed, considered his brands of canned tuna about the tastiest that money then could buy, a tribute that justfied one of Nielsen's pet theories and innovations; and the clerk who relayed the information is said to have left Nielsen's office the richer by a fist full of cigars. This was in a day when fish canners in general, and tuna fish canners specifically, had just become fancy pack conscious. It also was at a time when a few packers, Nielsen among them, had decided that the industry would have to put up a neatly packaged, quality brand product, *or else*. Indeed, Nielsen previously had harped quality to his superiors until he was blue in the face, but the old saltfish packing regimens, with their components of haphazard packing, careless production and lack of employe policy had been hard to upset. Here, then, if his lady journalist's enthusiasm was to be trusted, was some proof that he, and others of his revolutionary bent, had got on the right track. If a person so demanding of standards as a food editor had been sold, in effect, on his tuna pack, it was reasonable to assume that housewives in general, although perhaps not so accolade-happy, felt the same way. Moreover, if this turned out to be true, then all the production cheese-paring on tap wouldn't combine to increase demand for his product.

A FEW months canvass of various San Diego neighborhoods, of course, justified his claims. In company with several others who saw eye-to-eye on the subject, he began stumping for quality packs, neater packaging and advertising campaigns, with plenty of emphasis on cleanliness. In brief, production costs could be tempered somewhat by a more systematic form of plant management, he held, and, on the heels of several knock-down-drag-outs with his bosses, he was allowed a trial period to either sink or swim. How well he succeeded is a matter of tuna industry history.

In point of fact, this early-day conviction in his career, which today he considers a merchandising dogma embracing all facets of commercial production, is seen by many of his colleagues as the outstanding of the keys to his success. Amplified and ingrained in his character after decades of personalized application, his demand for quality stuff has become so pronounced that it embraces very nearly everything into which he comes in contact. It extends to his preference for clothes, the food and drink that he takes, in his home and its attendant accessories, such as furniture and other domestic equipment, and in his automobiles. Sparely-built and ruddy-complexioned, a legacy bequeathed by his seafaring Nordic forebears, he usually buys suits, in compliment to this ancestral facade, of a sober dark brown, for which his billfold is tapped plenty. He is an enthusiastic eater, and carries a notebook in which is jotted down most of the top-notch cafes and restaurants in the country. The pantry and storerooms in his substantial home play host to nothing but the best in edibles, and he is never more interested than when wandering through, and investigating, the canned or raw wares of grocery stores in the El Cajon district near his house. These excursions, more often than not, result in the acquisition of enough food to stoke the complement of a Chicago political rally, and are the despair of his diminuitive, blue-eyed wife who is, quite naturally, stuck with the job of allocating the necessary storage space. Some years ago, following his long-established penchant for research, he decided on a make of popular automobile. Certain that he had discovered the best quality car on the market, he since has remained faithful to it, a form of fidelity that has become the despair of several of his friends who sell other makes of automobile, and who would, reasonably enough, like to get an order from him once in a while.

"Automobile manufacturers are no different from fish packers," he says, "in the matter of quality merchandise. When I first settled on what I believed was the best car, I was satisfied. When other outfits put out a comparable product, I'll be happy to acknowledge their accomplishment. It's the same with my business. I think my tuna fish is the best canned tuna fish that money can buy. And I'm proud to be among the first of our Southern California fish packers to realize that there's no substitute for good stuff."

To that it may be added that this *first* first is not the only first in which he has been *first* during the past forty years of San Diego tuna industry firsts. President and Chairman of the Board of Directors of a $1,000,000 fish canning enterprise, from a start at scratch, he was born in San Francisco, California, the youngest of three boys to Rasmus and Francis Nielsen ,both of whom are dead. Nielsen *pere* was born in Norway, and came from a rather extensive line of sea-rovers, of one nature or another, and from commercial fishmen, some of whom had been, in the past, attached to the various Norwegian government fisheries agencies. Nielsen's mother was Swedish-born, a quiet, good-natured woman who was, as Nielsen recalls, a

Quality"

acks When Point Loma Was Only a Mud Flat an Paid Him Off.

stickler for detail, a characteristic which, among other of her good points, was much appreciated by her husband. A steel worker in the roaring days of Gay '90's Oakland, he often held up his wife's addiction to domestic *minutae* as a protean example for his offspring to heed and absorb. "Watch your mother at her housework," he would occasionally lecture, "she makes few useless moves, and the same principle can be applied to anything from making pies to running a merry-go-round. The job is easy. Think first about anything you plan to do. Then figure out how to do it with as few moves as possible. If you can do this fairly consistently, and then put your ideas into effect *first*, you've got the jump on life in general."

EXPOSED to educational formula of this nature, plus the possession of an admixture of blood noted for its inherent, moral, mental, political, social and economic placidity on both sides, it is little wonder, as the result, that Nielsen has become a man of superlatively keen judgment, and unique in his demand for detail. In the latter case, a good example would be his participation in the remodeling of San Diego's big Lynch Shipbuilding yards, now vacant, to fit his ideas of what a tuna fish cannery should be. Since early in October, when first the local newspapers carried front page columns announcing this addition to the area's multi-million-dollar tuna industry, the yard, with its five huge buildings and thousands of feet of space has been a bedlam of activity. In addition to other pressing duties, which he engineered for himself and associates at an even later date, he can be seen most any morning talking with any one or two of the stream of workman engaged in making a cannery out of a shipyard, offering suggestions, or reading the voluminous reports that pour into his office from construction bosses. The magnitude of this activity may be gauged from estimates involving the conversion. Although no official figures yet have been released, estimates concerning the complete monetary outlay have ranged from $500,000 to $800,000, and, added to this labor in the swim at Lynch's, are his functionings as top dog at San Diego Packing Company. This plant, which Nielsen and the same group that leased Lynch's yard bought last month, has been going full blast since end of a union strike against local canneries in early November. Currently, San Diego Packing company is turning out only its own brand labels. Later, however, the plant will pack for California Tuna Canning Company, scene of the present Lynch yards, and acquisition of San Diego Packing Company itself would seem to justify the opinions of those who hold Nielsen as a businessman of import. His youthful business training, to be sure, had plenty to do with his present standing, and to this must be added that he also had an advantage in serving under one of the sharpest men in the commercial fishing field. His tutor was none other than Knut Hovden of Monterey, California.

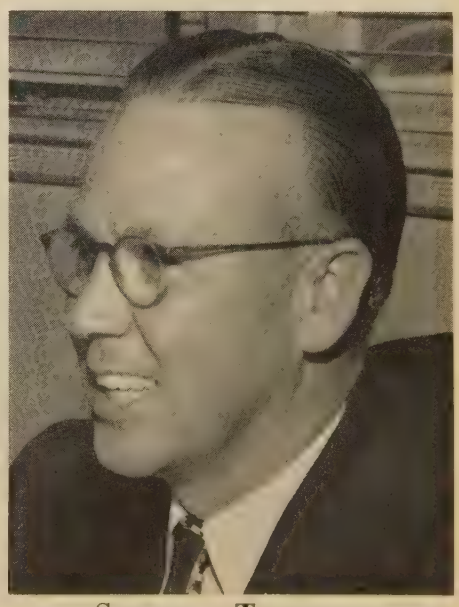
Fresh out of school, Nielsen, for some months previously, had decided that he wanted to make his pile from fishing. In those days, of course, the industry offered much less in the way of fortune to an aspiring youngster than it does today. Nielsen, therefore, decided that his chances were much better in the research and science end rather than in open commerce, and, to that end, he applied for, and got on the staff of California State Fisheries. The move had its advantages, *and* its disadvantages. In the former case, he learned plenty of regulatory measures set up by the United States government to guide, aid and restrict commercial fishing activities. He likes to recall the old days, and has never changed his high opinion of federal and state game and fish commission operations and laws. "Too often those boys are not given credit that they deserve," he remarked recently in an interview with a Los Angeles newspaper reporter. "I think it wouldn't hurt any fish canner or fisherman alive to spend a little classroom time with them." In the latter case, however, he sometimes feels that he didn't really get his feet wet until he accepted a job with Hovden, and his friendship and admiration for the lusty Monterey fisheries pioneer has not dimmed, in either instance, through the years. Hovden's decision to place young Nielsen in a position of importance, on the other hand,

Veep and General Manager
W. L. Robinson

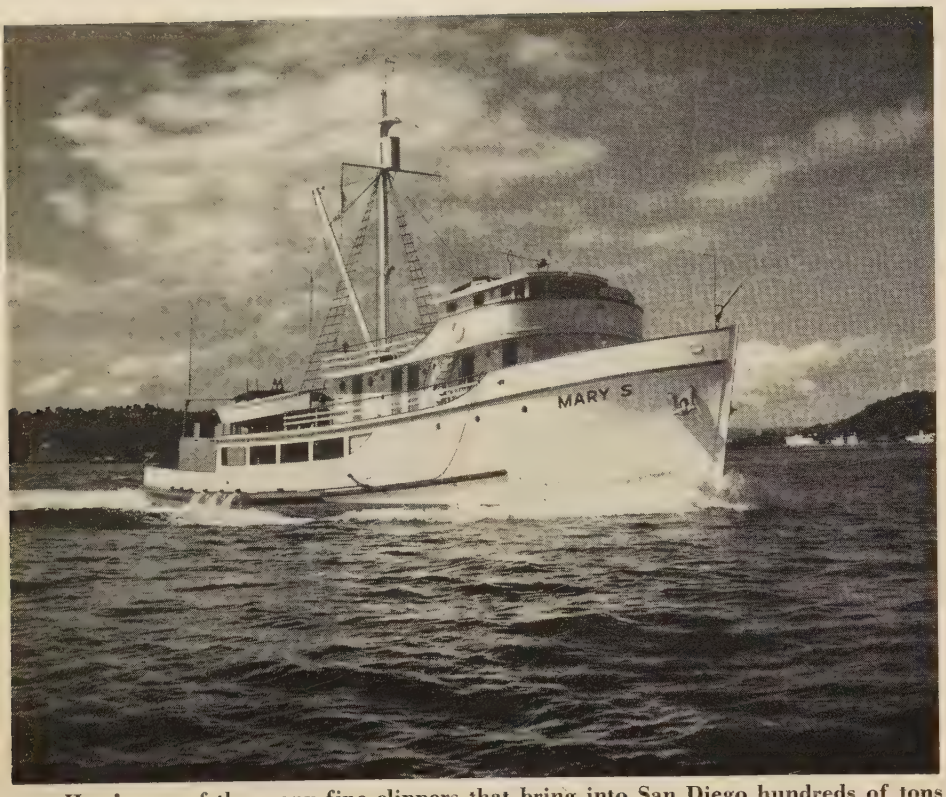
was typical of the quick, accurate judgments for which he since has become marked, and which, in the main, have paid off beautifully.

Nielsen's association with Hovden, in fact, came in on the heels of one of the most prominent of the latter's experimental decisions, i. e., the *lampara* net. Added to his advanced ideas relative to canning procedures, plant organization, et cetera, Hovden, a man who had come to this country because his throat reacted unsatisfying to the cold of Norway, and who had, by virtue of his production sense, put new life in the old Booth cannery at Monterey, had become interested in a little Italian who possessed little more to boast of than an idea for a net and a longhorn mustache of her-

(*Continued on page 31*)



Secretary-Treasurer
Glen Martin



Here's one of the many fine clippers that bring into San Diego hundreds of tons of valuable tuna to be processed.

1950 IN REVIEW

SAN DIEGO'S tuna cannery strike which ended October 31 interrupted the heavy flow of tuna into the local packing plants for seven weeks.

However, San Diego's economy continues to take vast strides ahead. This is revealed in the annual survey recently published by the San Diego Chamber of Commerce.

Income from the principal sources and measurements of trade, agriculture, fisheries, construction, power consumption, finance, and other key indices are presented in the annual study, which was compiled by the Chamber research department.

The Fish and Wildlife Service reports that the 1950 tuna pack in the United States is expected to break the all-time record with a production of approximately 8,500,000 standard cases. The pack probably will exceed that of 1949 by a million cases. This will be the sixth successive year that record has been set by the tuna industry. The average pack for the years 1944 to 1949 was 5,500,000 cases. However, during the war, tuna production dropped. In 1942, tuna production reached a low of 2,500,000 cases.

Tuna this year will only partially offset the loss in the production of canned salmon. The salmon pack this season was estimated to be 75,000,000 pounds less than in 1949. The tuna increase is estimated to be about 25,000,000.

During the first nine months of this year there has been a flood of tuna imported into this country, as the industry well knows. Foreign producers are speeding up their packs to the United States before the tariff of 22½ percent ad valorem is increased to 45 percent on January 1.

Activity

Business in the fleet boomed! San Diego's 225-boat tuna fleet, valued at more than 22 million dollars, would be augmented by nearly 20 new vessels before the end of 1951. All but four of the new clippers were being constructed in North Pacific and South Atlantic shipyards because of lower costs due to the proximity of lumber and other materials.

COMMISSION

Costa-Rica-U. S.

First organizational meeting of the Inter-American Tropical Tuna Commission meeting came off in San Diego, during the last part of July. Of the "multi-lateral" variety, the treaty was okayed by Costa Rica and the United States May 31, 1949. It was signed, for the United States, by James E. Webb, Assistant Secretary of State, and Dr. W. M. Chapman, Special Assistant to Undersecretary of State for Fisheries. Mario A. Esquivel, Costa Rican Embassador, and Jorge Hazera, Embassy Counselor at Washington, signed for Costa Rica. The purpose? To conduct research into the life of tropical tuna.

Ratification

The Commission was ratified by Costa Rica on November 7, 1949; ratification was exchanged March 3, 1950. The next move would be to get a budget, thought to be, from a preliminary standpoint, around $100,000. Director of Fisheries for Costa Rica would be Jose Luis Cardona-Cooper, who also would be chairman of the embryonic organization for the first year. Costa Rica would have one to four men on the board; the United States already had three. United States Commissioners attending the meeting were Milton James, Assistant Director, U. S. Fish and Wildlife; Lee Payne, Managing Editor, Los Angeles Daily News, and Eugene Bennett, Pillsbury, Madison and Sutro, San Francisco. Appointed advisors from U. S. section were Henry Niemala, Astoria, Oregon; Tom Sandoz, Astoria; John Real, San Pedro, California; James Waugh, San Pedro; Montgomery Phister, Vice-President, Van Camp's, Terminal Island; Harold Cary, General Manager, American Tunaboat Association, San Diego, California, and J. J. Camillo, General Manager Lower California Fisheries Association.

INDUSTRY

American Can

The American Can Co., Wilmington, Calif., held ground-breaking ceremonies on its eighth California plant. Vice President C. W. Roberts said the plant will serve Terminal Island fish canneries, the citrus industry and other Southern California food packers. Scheduled for completion in 1951, the factory will turn out 350,000,000 containers a year.

At Los Angeles

Plans for the construction of a $2,000,000 Continental Can Company plant and warehouse to be built in Los Angeles harbor were revealed when the Los Angeles Board of Harbor Commissioners received an application for six acres of land on Terminal Island. The two-story plant, which will employ at least

fifty persons, will manufacture metal containers. According to the application, a railroad spur will be built adjacent to the plant. The manufacturing site is in the heart of the cannery and shipping district on Terminal Island, although the company expects to manufacture various types of containers for use in the West. Los Angeles harbor is the world's largest fishing port with an annual gross business of approximately $100,000,000 a year. In the application a thirty-year lease was requested, which would yield a revenue of about $30,000 annually to the port's income.

TRADE

N.F.I.

Irving Usen of Boston and Newton, Massachusetts, was elected president of the National Fisheries Institute convention in Chicago, April 20. The Institute, a trade association of the fisheries industry held its Fifth Annual Convention at the Edgewater Beach Hotel. Harald Synnesvedt of Seattle was elected chairman of the board.

NCA

The canning industry dedicated in Washington, D. C., a new million-dollar research center designed to continue scientific studies aimed at maintaining and improving the purity and wholesomeness of canned foods.

The new building provides modern facilities for the research laboratories of the 43-year-old National Canners Association, which was the first national trade association to establish a laboratory solely for its industry's research and technical problems. The building also contains new facilities and equipment for other specialized activities of the Association which include development of recipes and consumer information to aid the housewife, programs directed towards constant improvement of canning crops, economic and statistical surveys and reports, and the dissemination of information on canned foods to industry and public.

Conference

The dedication climaxed a week-long series of meetings in Washington, and was attended by some 450 executives of the canning industry and allied industries.

GOVERNMENT

Fish and Wildlife Budgets

The budget estimates for the fiscal year 1951, running from July 1, 1950, to June 30, 1951, as approved by the Budget Bureau and recommended by the President, allow $1,412,217 for "Exploration, development and utilization of fishery resources." The new budget title, "Exploration, development and utilization of fishery resources," now embraces all activities shown in previous years under appropriations for "Commercial fisheries," "Fishery market news service," as well as for the exploratory fishing and technological phases of the Pacific Oceanic Fishery investigations. The appropriation for "Exploration, development and utilization of fishery resources" is administered by the Branch of Commercial Fisheries, Fish and Wildlife Service, in the conduct of the only Federal research and services for the fishery industries in the fields of exploratory fishing, technology, statistics, economics, and market news.

Statistics

In the field of fishery statistics, the increase requested will permit resumption of fishery statistical surveys in the South Atlantic States, Great Lakes and Mississippi River areas, thereby furnishing good field coverage of the nation's commercial fisheries. The increase, however, will not permit the resumption of the monthly publication *Current Fishery Trade*, which contains a summarized compilation of current and up-to-the-minute statistical information relating to the domestic fishing industry. The estimates for fishery economic investigation request an increase of $20,600, which will allow studies of factors which affect the price of fishery products, as well as the development of current information on the competitive effect of agricultural price support programs, imports, and other pertinent factors bearing on fish prices and fish consumption.

Funds

No additional funds were needed to conduct the current exploratory fishing program in Alaska and in North Pacific waters. The $127,000 increase in the estimate for exploratory fishing in the Gulf of Mexico will provide from six to seven months' additional operation of the exploratory vessel in the Gulf. The current appropriation is sufficient for not more than three months' operation during the year, but, with the increase requested, the work can be extended to a nine or ten months' period. The additional operating time will be devoted especially to the location of commercially valuable off-shore populations of fish. The total estimates will be sufficient to permit some research in the development of new and improved types of fishing gear and vessel equipment for handling that gear. Also, some research in the adaptability of electronic devices to fishing operations can be conducted.

Research

No increases were recommended for fishery technological research. Because of increasing costs, some curtailment will be required in the present research on freezing, packaging and processing of fishery products; on toxic clams; on

The Eyes of the Fleet

Today some tune clippers use helicopters to scout for the vast schools of tuna found in southern waters.

bacteriology and sanitation; on fish oils and vitamin assays; and on nutrition studies. Important research on freezing fish at sea, defrosting, filleting, and re-freezing, including vessel equipment, can not be expedited.

The increase requested in the fishery market news service budget estimate for 1951, as compared with the base appropriation for 1950, will permit re-opening of the Astoria, Oregon, office, the improvement of a market coverage in Chicago and New Orleans, and defraying the increased cost of publishing the monthly issues of *Commercial Fisheries Review.*

SCIENCE

Sardine Conference

At their annual conference in the Scripps Institution of Oceanography, La Jolla, representatives of seven Pacific coast agencies engaged in research on the sardine decided the usual seasonal northward progression of spawning has been delayed, possibly by lower water temperatures along the coast.

Spawning was noted from Cedros Island to Southern California waters between February and April. But, said the scientists, many factors can affect abundance before sardines become old enough (about 2 years) to become important to the commercial fishery. Therefore, "no reliable estimate of relative abundance as compared to other years can yet be made," they concluded.

The fish form a major food for tuna, on which much of San Diego's economy is based, and because of the big sardine canning and sardine reduction industry in San Pedro, Monterey and the San Francisco Bay area.

Sardine research now extends from the Pacific Northwest to Baja California. Scientists attended from research institutions in British Columbia, Washington, Oregon and California.

To the Rescue

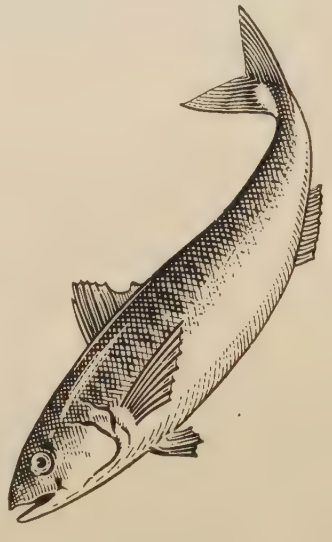
Sardine reduction plant operators could combine their limited quota permits during the 1950-51 season under a reversed decision by the State Fish and Game Commission. The action was taken by the commission to forestall "wholesale bankruptcy" among some of the 104 firms which reduce sardines into commercial oils and meals. The overall reduction quota of 150,000 tons, set earlier this year, remains unaffected. However, the revision will allow as many as three plants to combine permits for the season. Each permit holder will be entitled to reduce a maximum of about 1,450 tons. A similar order was in force the past two seasons because of the sardine scarcity off the California coast.

Earlier, the commission upheld its May decision banning any combining of quota permits. But, at the appeal of the San Francisco Sardine Association, the commission reversed the previous decisions. The commission pointed out that its order calls for limited consolidation. In the past, any number of plants could have combined their permits.

SHIP BUILDING

Shrimp Business

Construction of 25 welded-steel shrimp trawlers, each costing approximately $50,000 started at the San Diego shipyard of National Steel and Shipbuilding Corporation, according to C. Arnholt Smith, president, who announced conclusion of negotiations to secure a $1,250,000 Export-Import Bank loan to finance construction of the vessels for



two Mexican shrimp packing firms. The new vessels, similar to those built by National Steel in 1948 and 1949 for Mexican shrimp packing firms will begin to roll from the San Diego firm's famed fishing boat "assembly line" within the next few months.

To maintain this fast delivery pace without interfering with the firm's extensive ship repair business and other shipbuilding activities, it has been necessary to hire an additional 150 trained shipyard workers and to operate three shifts daily, Al Brosio, National Steel's vice president and general manager said.

Sub-Assembly Basis

Using the high-speed fishing vessel construction methods it pioneered immediately after World War II, National Steel will produce the new trawlers on a sub-assembly basis. Major sub-assemblies will be built "on the flat," later mated on the ways. Smith pointed out that negotiations for the Export-Import Bank loan and to settle contract details have been under way for nearly a year. To conclude negotiations, George Dew, shipyard manager, and Ray Fox, executive vice president, traveled to Mexico City to confer with government and packing plant officials. While size and performance details of the new vessels have not been revealed, it is expected that they will be quite similar to the vessels in the two shimp trawler fleets previously built by National Steel. These earlier trawlers, of welded-steel construction, were ice refrigerated, and powered by 85-hp diesel engines.

VISITORS

Ramos

General Silvano Perez Ramos, buzzbomb of the Mexican commercial fishing industry, came into San Diego, California, almost in the same breath, made arrangements for the purchase of several boats, announced formulation of a new Mexican fisheries organization, and predicted that Mexico was destined for an ever-increasing role in the world affairs of the industry in general.

"The question before us now," he explained, "is how best to educate our people to the value of fish as an outstanding food. To this end, a group of our fisheries leaders have offered our government a price of about 2½ pesos per kilo on frozen fish, which we will deliver anywhere in Mexico. The only thing that we ask is that the government establish the distribution points."

He lauded the various Mexican fisheries institutes "which are doing an outstanding job in research, rehabilitation and intelligent administration of our fisheries," and pointed out, as an example, the recently-formed *Camara Nacional de la Industria Pesquera,* of which he is President. This group, composed of leaders from both the West and East Coast of Mexico, have banded to conduct research investigation of all lakes, lagoons, and other bodies of water in Mexico. Currently, there are about 300 members, however, all fishermen interested may join, Ramos explained.

FIGURE MAN

Day

Albert M. Day, Director, Fish and Wildlife Service, United States Department of Interior, was honored guest at a luncheon in El Cortez Hotel, San Diego, California. The event was arranged by Don Loker of French Sardine Company, Terminal Island, California, and San Diego's Earl Nielson.

SAN DIEGO CHAMBER OF COMMERCE

SAN DIEGO 1, CALIFORNIA

December 1, 1950

Mr. Bradford Mishler, Editor
Pan-American Fisherman
205 Broadway Pier Bldg.,
San Diego 1, California

Dear Mr. Mishler:

It is a great pleasure for me to take this means of saluting the Pan-American Fisherman in its mid-century annual issue and also the great industry it represents. The value of this industry to San Diego is far more widespread than first appears on the surface. The total value of the industry is $70,000,000 annually, of this the fishing boats alone contribute approximately $35,000,000 annually of new money to the community in direct payrolls and catch shares as well as indirectly in shipbuilding, repair and equipment maintenance.

Economically it is impossible to separate the fishing industry from the canning, packing and processing industry it stimulates and complements. Over seven million cases of tuna were packed in San Diego last year for shipment all over the world. An additional value of 35 million dollars.

Fishermen, shipbuilders and cannery employees constitute one of the most stable employment groups in our community, being neither dependent on war production orders nor tourist travel for their livelihood.

The advertising value which accrues to our city in being recognized as the "Tuna Capital of the World" is an enviable recognition which we must jealously guard by protecting and fostering this primary element of the industry, our fishing fleet.

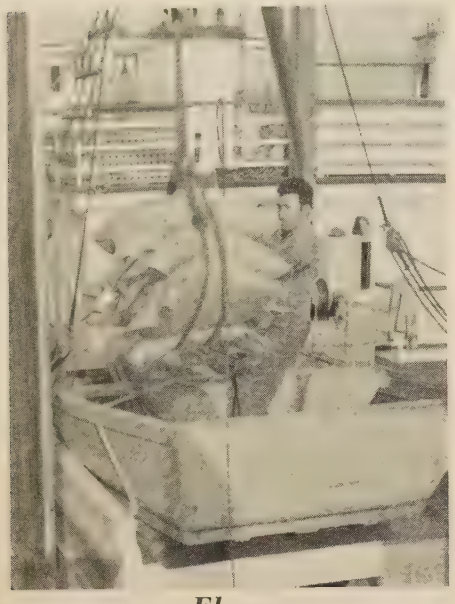
Thank you for this opportunity to express myself on this important phase of our economic life.

Very truly yours

Graydon Hoffman

GRAYDON HOFFMAN
President

Pan-Americ



Elena

Hugo Cessena, crewmember, at the controls. Loading salt aboard the Elena at the Shell Oil Dock in preparation for taking off to the tuna banks. 96-foot ship.

MAESTRO EL ALBACORE

Last month saw the fishing boats *Albacore* and *Maestro* tied up in San Diego repair slots, following freak propeller accidents. The *Maestro* owned by Orville F. Smith of Redwood City, lost its propeller while fishing albacore in the 30-mile fishing banks. Answering a call from the *Maestro*, the 17-ton *Albacore* afixed a tow line, and succeeded in bringing the crippled boat into the inspection docks at Ft. Rosecrans. No sooner did they arrive than the propeller of the *Albacore* dropped off, presumably as the result of a broken shaft. The *Maestro* was later towed to the Ketenburg Boat Works for repairs. The *Albacore*, owned by Donald Croker of San Diego, was taken to the Van Camp Cannery to unload a few tons of fish, pending installation of a new prop.

WINDY

Having an extremely profitable week in the tuna waters this season was the jigboat *Windy*, skippered by Don Cope. He brought in a nice load of albacore, and for his trouble took home a sizable check from Van Camp Cannery.

SAN ANTONIO

Landing in the bay off North Island shortly before dawn, a Navy seaplane struck and demolished the superstructure of the fishing boat *San Antonio*. Its sole occupant, Vittorio Trevisani, lost his life in the accident. The Navy's big PBM was slightly damaged, and its eleven passengers were uninjured. The seaplane channel which is marked with buoys and signs, warning small crafts to keep clear, is where the accident occurred, the Navy reported. A Naval crashboat crew was dispatched to the scene, and found Trevisani's body in the smashed boat. The craft was towed to the Naval Air Station dock.

Trevisani, veteran fisherman for 20 years was apparently on his way to haul his lobster traps, which were off Sunset Cliffs and La Jolla.

Katie Lou

The vessel's skipper, Joseph Nunez, standing on bridge.

Mary Barbara

Left to right, top: Jay Mellusi (skipper), Mario Di Bona, H. R. Knox, Dominick Di Bona, Abe Bruni, Frank Asaro, A. A. Asaro. Left to right, down: G. Rodriguez (cook), Charles Piro, Santo Tarantino, Frank Camarda, Frank Mitchell (chief eng.)

MARY S

Never have I seen two gentlemen of San Diego's commercial fishing industry with the *industry* of Manuel Souza and son, Frank Souza, both of that big, sleek greyhound of the sea, the *Mary S.* Seems like every time I run on to them they are busy doing something to improve the efficiency, looks, et cetera, of their beautiful vessels. Manuel, who is, of course, skipper, and Frank, were at it again early last month, when I ran

n Greets the Fleet!

on to them on the waterfront. They were working like mad on the stern of the craft, cleaning and painting. When they get their rest or have their fun while in port is something that I'd like to know. But then maybe that's the secret of successful fishing. Certainly those Souzas can point to a successful career in the industry. They're right at the top all the time, and more power to them!

CAL MAR

Talk about bad luck; the tuna clipper *Cal Mar* really had it! While out fishing, the *Cal Mar* broke her tail shaft, and immediately called for a tug boat. They had to wait two weeks at the Galapagos Islands for the tug boat. It finally arrived and started to tow in the crippled ship. They had gone only a short distance, however, when the tug broke down. Despite the trouble, the *Cal Mar* was reported safely on her way home at the time of this writing. The boat is skippered by Tony Mascarnehas.

SHORTIES

Joe Silva and his brother Manuel Silva have recently left Portugal, one of the stops on their traveling agenda. They are on their way to Cape Town, South Africa, to visit another brother, John Silva. Joe is the owner of the *Deolinda* and *Yvonne*, two local ships. Bon voyage, Messrs. Joe and Manuel. . . . Cecil Drake, co-owner of Drake and Bullen, is now going full speed ahead in the Marine Insurance world, which they started handling June 15th of this year. Mr. Drake says there are an estimated twenty-five new clippers being built, which will expand the already fabulous fishing industry considerably.

LUCKY TRIO

The *Virginia R, Mermaid* and newly built *Cape Beverly* sang a very similar tune last month, when all three boats came into port practically on each others heels, and all carrying full loads. Managing owner of this lucky trio, Cecil Drake, reported that Manuel Ribiero, Frank Correia and Paul Lynn, the boats' respective skippers, shared his enthusiasm when they docked at San Diego following a profitable strike in the tuna banks.

West Coast

Skipper Angelo Castagnola, standing on bridge.

Lady Ann

Old Home week. Left to right, top: Bill Magellan (managing owner of *Anna M*), Bob King, skipper of *Lady Ann*, Manuel Bettencourt, retired skipper, Johnny Hendrich, chief engineer, Dick George, C. L. Tullis. Left to right down: Ralph Madruga, Jack Chagas.

The Finest Marine Service You'll Find Anywhere

FAST because—the best and most modern facilities are standard with our company. All jobs, large or small, are completed rapidly with the use of such modern equipment. Yet finished work always represents the very best.

EFFICIENT because—we know your problems and how best to solve them. This ability to solve your marine repair problems with complete satisfaction is the reason an ever-increasing number of boat owners used this marine repair service exclusively.

DEPENDABLE because—experience, plus the use of the finest tools and materials available always assures you of a finished job of lasting satisfaction. Completion of the first work will quickly convince you of the dependability of repairs by this yard.

Season's Greetings

To our many customer friends we extend best wishes for the New Year. It is our sincere hope that it will be a very prosperous one.

All Work Fully Guaranteed

TWO 1000-TON MARINE RAILWAYS TO SERVE YOU

Long Beach MARINE REPAIR CO.

1409 W. 7th St. Phones L. B. 6-6433 TE 4-1214 **Long Beach, Calif.**

Press-O-Grams

With HAP HOLLIDAY and PHIL BERTRAM

We have been asked recently: Exactly what is the heart of our great tuna industry in San Diego. In other words, what phase of the industry is the most important towards its stability? We will try to answer that question this way . . . is the heart of the industry in the five major canneries now operating in San Diego? . . . Is it in the vast fleet of tuna clippers that travel thousands of miles in search of the delicate tuna which has now become a staple food commodity? Is it in the few thousand men that form the crews to man our tuna clippers? Is it in the many outlying businesses that serve and supply our great tuna fleet so that it may operate to the utmost advatnage? Is it with the cannery workers, sales departments, fuel docks, waterfront representatives and many other important phases of the industry? The answer is no. . . . We cannot single out any one of these things and call it the heart of the industry, because it is all of these combined. It is the teamwork, cooperation and eagerness of all these businesses and people who are striving to make and to keep our great industry in a great city. Without this teamwork and cooperation from all hands, our tuna industry would not be what it is today, and we, like so many others are proud to be a part of it. Proud because it is such a pleasure to work with such a fine group of people. So let us consider the heart of the industry as the industry itself for one phase could not survive without the other. It is the good will and cooperation of all that gives life to our tuna industry, as the vital organ within us . . . the heart.

Cosimo Cutri, Jr. has caught the eye of northern sports writers. Cosimo is the young football flash developed at San Diego High and Junior College by Bill Bailey. His sensational performance with the S.C. Trojans against Stanford gave him a 5.2 average for 14 tries against Stanford's line. Nice going Cosimo! . . . The Rollin Virissimo's have moved into their beautiful new home atop Hugo street. Rollin, skipper of the *Hornet*, arrived in port just in time to help his wife Louise carry their clothes into the new home. The Virissimos say the welcome mat is always out to their many friends. . . . Barbara and Charlie Kauffman have pulled up stakes in San Diego and are now in New Orleans where Charlie is overseeing construction on his new Avondale clipper, the *Gulf Star*. The Kauffmans expect to return home for the Christmas holidays.

The home of the Ed Kovalchecks was the recent scene of a farewell party for former president of San Diego Packing Company, J. H. Dempsey, or better known around the waterfront as *Prince*, a self explanatory nick name. . . . Jack Medina departed recently on his first trip as skipper of the *Mayqueen*. Brother Carl is remaining ashore until the first of the year. Jovial Joaquin Medina, father of the boys, who usually goes out on the *Mayflower* with son Ray, is also staying in port to spend the holidays at home. . . . Two new clippers making their debut in the fleet, Tony Francisco's *Countess*, and Vincent Gann's *Cape Vincent*, are making every effort to complete outfitting, and head for the bait grounds. . . . Avelino Gonsalves, former skipper and co-owner of the *Excalibur* has turned the helm over to his younger brother, John. This is "Father" John's first trip as a skipper. Ave recently purchased an interest in the *Santa Anita* and is now skippering this clipper. Incidentally the Gonsalves were able to spend one night in their new home on Armada Terrace before the *Santa Anita's* departure.

Arrivals and expected arrivals (blessed events!) Mr. and Mrs. Avalino Gonsalves, due January 1; Mr. and Mrs. George Dew, date unannounced; Mr. and Mrs. Janous Marks, latter part of January; Mr. and Mrs. Robert E. Lee, arrived at their home from Mercy Hospital early last month, the richer by an 8 pound 11 ounce boy, Garry Robert. Irene is assistant cashier at the U. S. National Bank. There's a catchy little facet to the association of these ladies of the bank, who are expecting. True to the tenets of banking here, there and everywhere, they prefer to refer their incomplete business involving motherhood as a subject in "escrow." Escrow cases number one, two and three, are as follows: Phielias, Hastings and Forward. Escrow cases completed are: Strange, McGee, and Gay. . . . There's a smile of satisfaction on the face of Commander MacDiarmid of the Coast Guard these days. His long awaited wish has finally come true. We are referring to of course, the new crossing lights between the Coast Guard air station and Lindbergh Field on Harbor Drive. . . . If any of you folks ever hear Frank Perry say that he is getting thin, don't believe it. We had the pleasure of dining out with poor, weak Frank the other evening, and you should have seen him eat!

Our tuna industry seems to be well represented in the new Point Loma Kiwanis club which held their charter night in the S.E.S. hall recently. The dinner meeting was a hundred percent successful and it was very well planned. Everyone enjoyed the food and the speakers as well as the entertainment, which was outstanding. . . . Julius Zolezzi's new boat the *Mary Jean*, formerly the *North America*, should be ready to go in the immediate future. We say new boat, because Julius has really gone through her from stem to stern, making changes here and there. Already the boat looks plenty sharp. . . . Joe Charleton, managing owner of the *Santa Anita* and the *Sea Magic*, arrived here by plane recently for business reasons from Pascagoula, Mississippi. . . . It should make the members of the Cabrillo clubs mighty proud to know that monument atop Point Loma was visited by 547,683 people during the travel year. This is approximately 60,000 more than the preceding twelve months. After California, the most visitors were registered from Illinois, Ohio, Massachusetts, Texas, New York, Arizona, Michigan, and Colorado. Florida registered a 200% gain over the preceding year, to lead the list of states showing an increase in interest in the monument.

The forty-two foot fishing boat *Ranger* burned and sank off Oceanside last month, but the owner, James Downey of Chula Vista escaped uninjured, the Coast Guard reported. Downey was the only person aboard. The mishap occurred about fifteen miles off the coast. . . . Glenn and Virginia Martin and family have deserted the bay side of Point Loma. They recently moved into their charming new home overlooking Mission Bay and La Jolla.

Phil Bertram

AT JESSOP'S

USEFUL

CHRISTMAS GIFTS

• SEXTANTS

Featuring a $75 saving on the popular BLATH imported sextant with its greater field of vision . . . now only $275. Also available — the famous David White and Huson makes.

• BINOCULARS

A complete selection — in a wide price range from $54.50 to $210. Famous makes—plus Govt. surplus and Imported brands . . . designed for marine use.

Many, many other fine gift suggestions—including: Marine Clocks and Watches; Chronometers; Barometers. Convenient Credit, of course.

J. Jessop and Sons

San Diego La Jolla

EBB'N FLOW

(*Continued from page 14*)

IN SAN DIEGO

Increase Wanted:

On November 1, engineers of San Diego tuna boats notified boat owners that, effective January 1, they want an increase of one-half share in the profits of each voyage. At present, the engineers are now receiving 1½ shares. Under the present contract, 60 days notice must be given on proposed salary increases.

Another:

The Martinolich Shipbuilding Company laid down the keel of a 260-ton, 145 feet tuna clipper during the third week of November. It is being built for Joe Rogers. Another bit of news from Martinolich is the addition of a 389-foot drydock to the plant. It is being leased from the Navy. The drydock can handle vessels up to 2800 tons.

MARKETING

European Fish Study:

The Chief of the Economic and Statistics Branch of the FAO Fisheries Division, G. M. Gerhardsen, has been assigned to the Organization for European Economic Cooperation to head a group conducting an examination of the factors hampering the marketing of fish in Europe.

The apparent overproduction of fish in Europe, as compared with actual demand, has become a matter of great concern. Although the fish which have been caught have been disposed of in some way or another, the outlets have been of an alarmingly unstable character.

When the OEEC Subcommittee on Fisheries considered the situation it felt that "there is a considerable scope for an over-all increase in consumption" but that there are certain factors which obviously limit the possibilities. The subcommittee found that it was not possible to frame specific proposals for increased consumption of fish without frist making a more detailed survey.

Upon the unanimous recommendation of the principal European fisheries administrators, it was decided that OEEC should seek the services of the Chief Economist of the FAO Fisheries Division for six months to act as head of a team of experts, who are to be nominated by the countries concerned. This team will conduct a survey of the factors limiting the consumption of fish in Europe, so that the necessary adjustments may be made to bring about an increased consumption. The survey will deal with such things as the structure and behavior of prices and finance, seasonal fluctuations in fish supply and quality, consumer preference and finally, government policy on quotas, import duties, and local taxation. It is felt that practical information on these matters would very likely make it possible for the governments themselves to make adjustments that would lead to the desired increase in consumption of fish and fish products.

COMMUNICATIONS

"Compact, efficient and precisely engineered radio telephone today is 'must' equipment on successful fishing vessels."

This observation is made by A. L. Henderson, head of the Pacific Electronics, 2355 India Street, San Diego—a company which has installed radio telephone equipment in many of the most successful boats, large and small, fishing along the Pacific coast.

The importance of such equipment has long been recognized by the larger boats, and today the owners of smaller boats are realizing the value of radio telephone. It provides constant contact with shore—for emergencies, for important fishing information, and ship-to-market contact for the latest sales developments.

"Low cost, dependable radio phone units requiring a very minimum of vessel space, are being installed regularly by our men on many smaller boats,"

(*Continued on page 30*)

The GLOBE

An International News
File compiled by
FOREIGN BUREAUS
of
Marine Press Association

AUSTRALIA

Scad

Australian fisheries authorities have unanimously agreed that scad (Trachurus novaezelandiae), formerly known as horse mackerel and cowanyoung, will be renamed jack mackerel, according to the September, 1950 Commercial Fisheries Review.

Since it had been found that the name scad was not entirely satisfactory from a marketing point of view, and since it was very closely related to the California jack mackerel (Trachurus symmetricus), it was believed possible by Australian fisheries authorities that the Australian canned scad would be competing on the same markets with the California fish. It was pointed out that the name jack mackerel would not only have greater appeal on the local market but would also be known on the overseas market.

Shrimp Fisheries

Since the discovery of the first shrimp grounds off Stockton Bight, near Newcastle, New South Wales, Australia, in February 1948, the North Coast grounds to the end of 1949 yielded 1,500,000 pounds, the August 1950 Fisheries Newsletter of the Commonwealth Director of Fisheries reports. On an average wholesale value of 2/- (22.3 cents) per pound, the harvest was worth -150,000 ($334,500).

Soon afterwards grounds were discovered at Evans Head and off the Richmond, Clarence and Macleay Rivers, and small patches were discovered off the Hastings River.

All the prawns taken on the North Coast so far had been taken not more than two miles outside the breakers. It was evident that the larger prawns were going into deeper water.

In July this year, ocean shrimp grounds were discovered on the South Coast of New South Wales off Shoalhaven Bight.

Inspectors report that in their opinion these grounds would prove to be as important a discovery as the Stockton grounds.

Several months ago, some trial shipments of Australian shrimp were shipped to the United States.

NETHERLANDS

Commission

A commission to study the Netherlands trawl fishing industry and to make recommendations, among other subjects, on the improvement of equipment and methods of financing such improvements, was appointed by the Minister of Agriculture, according to a September 20 American Embassy dispatch from the Hague.

MEXICO

Rockefeller

The Navy Ministry of Mexico says the Rockefeller Institute has agreed to study Mexican fishing and draft plans to improve it.

Alberto J. Pawling, acting Minister, said Rockefeller technicians are already in Mexico City.

DENMARK

Costa Rican Mission

The Government of Costa Rica invited a group of Danish fishermen to visit Costa Rica. This group is interested in transferring a fishing fleet and processing factories to Costa Rica in order to catch and preserve tuna and other fish, and to manufacture fish meal and oils, an American Embassy dispatch from San Jose reports. However, no definite plans have been formulated as yet.

PHILLIPPINES

"Bell" Report

The "Bell" report on the financial and economic problems of the Philippines contains sections of interest to the fishing industry of the Pacific Coast. In the past the Philippines has been a good customer of West Coast fishery products.

Reproduced in part below, is the section of the report which deals with fisheries.

"The fishing industry, which is a major source of protein food in the Philippines, was demoralized following the Japanese occupation. Most of the commercial fishing had been in the hands of the Japanese and was almost totally destroyed, local and pond fishing was sharply reduced by war damage and neglect.

"The Philippine Rehabilitation Act of 1946 authorized the Fish and Wildlife Service to cooperate with the Government of the Philippines in the rehabilitation and development of the fishing industry and to develop a program of conservation of the fishery resources in the Philippines and adjacent waters. A technical Fisheries Mission was sent to the Philippines, and with its aid all types of fishing in the Philippines made considerable progress. However, the authority of this Mission expired on June 30, 1950 and it is feared that much of the progress made may now be lost. The Philippine Government has asked for a continuation of economic and technical assistance in the development of its fisheries and such assistance seems advisable in a program to expand food production.

"Commercial fishing has expanded rapidly in the postwar years. The number of vessels engaged in commercial fishing has been increased from 358 in 1946 to 826 in 1949, with more emphasis being placed on power boats than formerly. Despite this increase in vessels, the commercial fish catch is still only about half of prewar. In Philippine waters, the expansion in commercial fishing is limited by the small areas that have a sufficient fish population for economical operation. The technical Fisheries Mission found the most likely areas for pelagic fishing to be in the Sulu and Celebes seas and recommended establishment of a tuna cannery in southwest Mindanao. There are extensive areas for tuna fishing which were formerly fished by the Japanese, and the expansion of tuna fishing in these areas is feasible.

It Is Our Sincerest Wish . . .

—that our many friends and customers will find the coming holidays full of good cheer—and that the year 1951 will prove a happy and a prosperous one.

Cutri Insurance Agency

1016 FIRST NATIONAL BLDG. 5TH AT BROADWAY

SAN DIEGO

Since 1925 John Hancock Mutual Life Insurance Company of Boston, Massachusetts PHONE M-0174

EBB'N FLOW

(*Continued from page 28*)

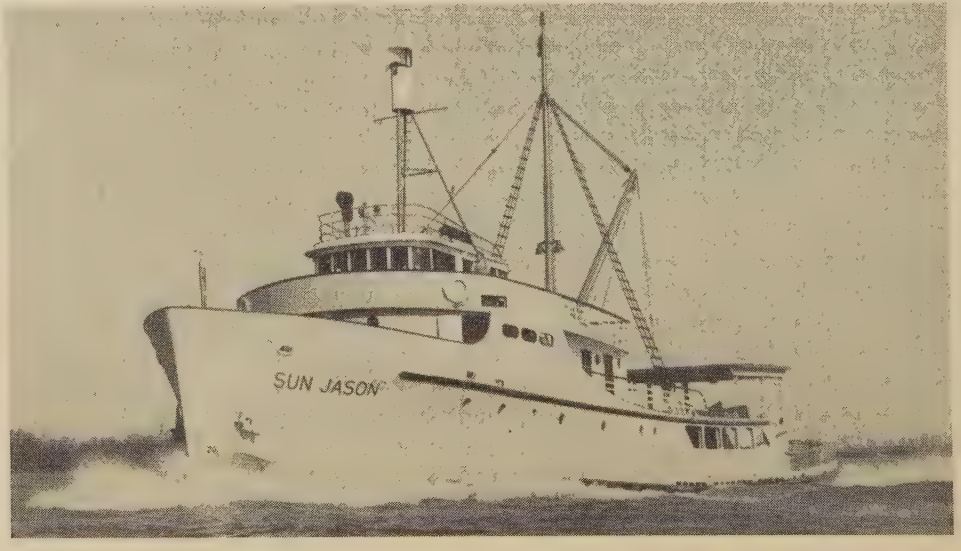
says Henderson. "And almost daily we hear from one or more of these owners on the many profitable uses of this equipment."

The Pacific Electronics Company is now manufacturing a radio phone unit specifically designed for smaller boats. It is reasonably priced, unusually compact, and engineered with exceptional precision. The transmitter of the unit offers an amazingly low current drain on batteries, causing little more recharging than entailed in regular boat operation without use of the radio phone unit.

The Pacific Electronics company designs and builds its radio phone and telegraph equipment in its own modern shops in San Diego. Besides its comprehensive line of units for all boats, large or small, the company offers a fast, dependable repair service.

Presently, Henderson reports, the Pacific Electronics company is outfitting with the latest in radio phone units, some dozen or more tuna clippers now under construction in various shipyards in the San Diego area.

fame makes the name



WHEREVER you hear about tuna, you hear about AVONDALE built clippers, the Paramount, the Santa Helena, the Sun Jason—and others. Ask about them, about their seaworthiness and sturdiness, about their all 'round quality. They're queens of the fleet wherever they go!

AVONDALE MARINE WAYS INC.

RIVER FRONT, NEW ORLEANS DISTRICT
TELEPHONES WALNUT 8970—CHESTNUT 5853

Main Plant, Avondale, La. Quick Repair Plant—Harvey, La.
MAILING ADDRESS: WESTWEGO, LOUISIANA

MISTER QUALITY

(*Continued from page 19*)

oic diametrics. This net idealist's name was Pietro Ferrante, and, financed and encouraged by Hovden, he came up in a few months with the forerunner to the present-day purse seine. The development, of course, had the dual effect of upping Hovden's production and of causing his ambition for expansion to arise tenfold. That's when Nielsen came in, although at first somewhat un-pretentiously.

AS an industrial enterprise of stature, in fact, or a beauty spot calculated to cause rapture, the Nielsen-Hovden fish cannery, K. Hovden company, in Point Loma, California, *circa* 1922, fell far short. Located on a mud flat, it sported little more in the way of magnificence than sixteen employes, three cookers, two ancient Johnson seamers for square cans, a single retort and one steam boiler. This equipment was crammed into a structure 48 x 170 feet, and the raw fish had to be lugged from a wharf 910 feet into San Diego Bay, carted on dump cars running on steel tracks and powered back and forth by a Ford Locomotor. Nielsen gets a belly laugh when he talks about it today. "I'm glad it's over with," he says. "We had what probably was the only train exclusively devoted to carrying tuna passengers. It was a job trying to figure out plant improvements and still make a little money. But we finally decided that, by enlarging and improving the plant and the quality of our pack, we could come out a bit nearer the top." They did.

By 1930, in fact, this idea, though nebulous at first, had begun to pay off. A couple of years prior, to be specific, Nielsen had been able to boast of a plant that cooked daily about 36 tons of fish, and, from an exterior view, looked somewhat more important. About this time, moreover, he began to see the possibilities of producing canned tuna for national consumption, and, after some months of arithmetical calculations, startled some of his colleagues by announcing that soon he would be producing 150 tons of fish a day. As a starter, he added, he would buy out Hovden. This is now tuna industry history, an event that took place in 1933. By June 30, 1950, to be sure, after his plant, which he had re-christened Fishermen's Tuna Packing Company, had been bought by Terminal Island, California's, French Sardine Company, and had again been re-christened High Seas Tuna Packing Company, he was rolling. Originator of a complete overhauling job, complete with new equipment and production efficiencies, he had High Seas consistently turning out substantially *more* than 150 tons of fish a day. Then, a little over two months ago, he made a series of moves that surprised even his most hearty boosters.

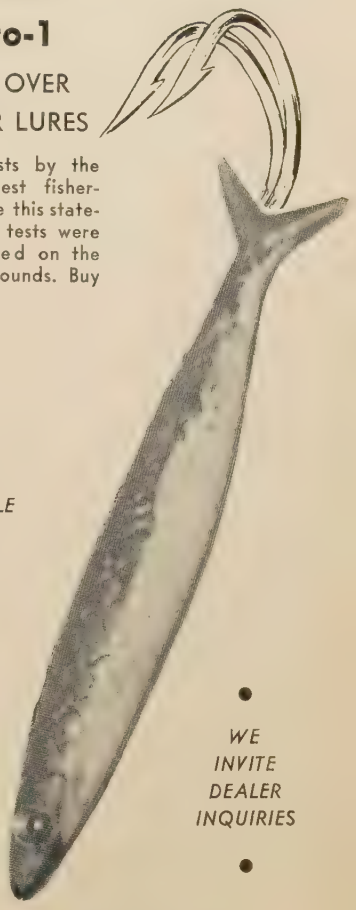
First of these was the previously-mentioned lease of Lynch Shipbuilding Company's old yards, which he announced was slated for the post of one of the world's cleanest and most outstandingly-equipped fish canneries. A few weeks later, however, a joker appeared. Remodeling, on a scale which he demanded, would take more time than he had anticipated, his contractors informed him. Ever impatient with delays, once he has made up his mind, Nielsen and his associates therefore disappeared for a few days, and when they returned, the local newspapers carried the news that they had purchased outright San Diego Packing Company from a San Francisco syndicate. A few days following his formal resignation from the position of General Manager of High Seas, he had formed a select organization of fisheries figures, and these gentlemen emerged as the Board of Directors for both of his current enterprises. President and Chairman of the Board himself, his executive officers are W. L. Robinson, Executive Vice-President and General Manager, and Glen D. Martin, Manager and Acting Secretary and Treasurer. The remaining Board member is a Los Angelan, Frank Rouse. Wayne Prickett, a long-time associate of Nielsen's and a man who, in company with Nielsen, Robinson and Martin, well-known in fisheries circles on the West Coast, will be the group's Construction Superintendent at both plants. Typical of Nielsen's methods of operation also is his insistance on good public relations, a department currently headed by Hap Holliday. Civic-minded, and himself a staunch supporter and member of fraternal and business clubs, his present pride and joy, so to speak, is the Point Loma Business Association group, of which he has been the President for the

(*Continued on next page*)

FISHONG
(TRADEMARK)

EVERY TIME
it takes
4-to-1
FISH OVER
OTHER LURES

actual tests by the world's best fishermen prove this statement. All tests were conducted on the fishing grounds. Buy it—try it!



AVAILABLE IN ALL POPULAR SIZES

WE INVITE DEALER INQUIRIES

COMMERCIAL or SPORTS TYPES

The commercial type rigging is simple, necessitating only passing a steel leader through from tail to snoot. Sports type, ready-rigged with stainless steel hooks and leader is ready-to-fish assembly.

CHOICE of COLORS

Transparent in AMBER & WHITE, GREEN & WHITE, MAROON & WHITE, YELLOW & WHITE, PINK & WHITE.
SILVER & WHITE (non transparent)
All Fishong lures or jigs are FLUORESCENT AND LUMINOUS, SPECIALLY TREATED FOR "BLACK LIGHT" RECEPTIVITY OF FISH.

FISHONG LURES, Inc.
3109 "D" Avenue
G 7-5789
National City, Calif.

The Fisherman's YARD
24-HOUR SERVICE * REPAIRS
1000-TON DRYDOCK * MARINE RAILWAYS * COMPLETE SHOPS
HARBOR BOAT BUILDING CO.
FISH HARBOR
TERMINAL ISLAND, CALIF

MISTER QUALITY

(*Continued from page 31*)

past two years. On the subject of public relations, he says, "The man doesn't do business who can escape responsibility to his community. And if his business is a good one, then he can thank, in a great measure, that community."

Due to his long hours at the job, Nielsen has, quite naturally, very little time for hobbies. In 1929, he experimented and invented the aluminum can which, until World War II, was used almost exclusively by tuna packers on a national basis. A war casualty, the item since has been replaced by other types of cans, but Nielsen considers his invention, upon which he experimented until as late as 1941 in company with engineers of the Aluminum Company of America, a contribution to the industry. "One of these days I may get an idea for something similar," he explains. "Then I'll have some more fun. Until that time, you'll have to consider my hog and chicken raising and photography as hobbies."

A RELENTLESS picture-snapper, Nielsen has taken photos that national magazines have been interested in buying. Possessor of some truly first-class equipment, he is seldom found traveling without a couple of cameras, complete with color slides, telescope lens and the like, and he's been known to study a sinking sun for more than an hour before trying for a shot of one sort or another. This practice, of course, has brought, from time to time, comment from his wife. "If he'd slow up a little the same way at work," she says, "maybe I could stand the pace easier." To that there may be certain of his associates who would be inclined to add, Yea.

SARDINE

(*Continued from page 16*)

offshore for 400 miles. Three vessels are taking part in the survey.

Sardine Hazards

What are the environmental "rigors" to which the young sardines are exposed? Let us consider the basic ones.

Food: The sardine larva on hatching is very small, indeed, scarcely more than 1/10 of an inch long, very thin and thread-like, with scarcely more than a 3-day supply of yolk remaining before it has to fend entirely for itself. Because of its small size, its food requirements must be very exacting. The food must be limited to the eggs and young of invertebrate plankton animals, to very small animals, and to small marine plants (diatoms). If such food is not present in sufficient abundance, a very high mortality must result among the sardine larvae. With increase in size the larvae can utilize as food an increasingly larger proportion of the plankton population.

Predators: The very small sardine larvae are subject to predation by all the larger plankton animals—copepods, amphipods, arrow-worms, jelly-fish, ctenophores, salps, as well as by all filter-feeding fish, including the older sardines. Many of the plankton animals that serve as food for the adult sardine prey voraciously upon the sardine larvae. At no period in its life history does the sardine have so large a group of potential enemies as during the first few weeks of life.

Currents: Sardine eggs and young larvae are free-floating passive agents, completely at the mercy of the currents that carry them along. Not until they develop their fins and become of some size are they able to swim about freely and resists such transport. The eggs and larvae may be carried by currents to areas quite unfavorable for their survival.

The hazards of this early period in the life of a sardine are so very great

Let BARONOV'S be Your Santa Claus this Christmas

Give *Jewelry Gifts* *that last*

TERMS IF DESIRED

Depend upon BARANOV'S for the best values and styles in Diamonds, Watches, Jewelry, Silverware, Home Appliances

"The Jewelry Store that Confidence Built"

BARANOV'S Jewelers

FIFTH AVENUE AT BDWY.
2911 UNIVERSITY AVENUE
. . . and NATIONAL CITY

• Abalone
• Mackerel
• Sardine
• Lobster!

MARCA Peninsular BRAND

PRODUCT of MEXICO

PACKED BY PESQUERA PENINSULAR S. de RL

Ensenada, Baja Calif.

that there can be little doubt that the success of a year class for good or ill is largely determined during this period.

Food Supply

When the food supply available to the sardine larvae is plentiful, there are good reasons for believing that survival will be good. Thus the problem of food supply, or as it is expressed technically, productivity, becomes one of our major problems. What are the conditions that favor a plentiful food supply?

For the sardine larvae to have a plentiful food supply, the animals they feed upon must have adequate plant food. The plants in turn must have adequate nutrient materials: marine plants need fertilizers for good growth just as do land plants. These nutrients are supplied to a great extent by vertical currents in the sea. Let us consider this problem of productivity in some detail.

In the ocean, as on the land, the primary producers of foodstuffs are plants. In the ocean these are principally minute, free-floating organisms known as diatoms. They manufacture foodstuffs, as do any plants, through the process of photosynthesis. Sunlight is necessary for this process, hence the diatoms are confined to a surface layer seldom deeper than 300 feet. Chemical raw materials are needed in the manufacture of foodstuffs, particularly such substances as carbon dioxide, compounds of nitrogen (ammonia, nitrites, and nitrates), phosphates, silicates, sulfur, as well as traces of certain metals such as copper, iron and manganese. The animal populations of the ocean are completely dependent upon the marine plants for their foodstuffs. Of course, not all animals feed directly on the diatoms. But whatever the source of food of a marine animal, whether it be fish or squid or crustacea or the numerous, small free-floating animals known collectively as zooplankton — through some chain of events it may be traced back to the primary producers of organic material, the marine plants. The sardine is a plankton feeder during all stages of its life history. Marine plants enter into its diet directly, but of greater importance as food for the sardine are small plankton animals — particularly such groups as copepods and euphausiids.

Some of the raw materials needed by marine plants for the manufacture of organic matter are present in the surface layers in very small concentration only. This is particularly true of such essential nutrient materials as nitrates, phosphates and iron. If the supply of these "fertilizers" was not being constantly replenished in the euphotic zone (the zone of plant growth), depletion would soon result and no further growth of diatoms would be possible. The replenishment comes about, in part, as a product of the metabolism of plants and animals while living, or by being released through the action of bacterial decay after their death. However, much of the latter process takes place below the euphotic zone, and inasmuch as the nutrients are not ordinarily utilized in the deeper water, they tend to accumulate there. Hence the return of nutrient substances to the euphotic zone must come about by some process of vertical circulation of the water and/or by upward diffusion.

We may speak of the return of these essential plant foods to the surface layer as "enrichment." The most important method by which this is effected off our coast is through a process of vertical water movement known as "upwelling." One of our major problems is the determination of the whereabouts, extent and time of occurrence of such "upwelling" of deeper water, and its dispersion to adjacent water masses by horizontal currents and mixing processes. The determination of the rate of upwelling is not a simple task. We cannot go to sea and actually measure the rate at which nutrients are being raised to the surface, for the vertical

(*Continued on next page*)

WHEN IT BLOWS...
BE SURE YOU HAVE A
DANFORTH DOWN. The proper
Danforth will hold better, cost
less, handle easier. It stows
flat . . . has no folding parts.
Add one of these remarkable anchors
to your equipment THIS winter!
DANFORTH ANCHORS

A. O. REED & CO.
PLUMBING AND HEATING

Installations and a Complete Repair Service

A COMPLETE LINE OF WATER HEATERS

672 8TH AVENUE

MAIN 2141 SAN DIEGO, CALIF.

Holiday Greetings

to all our friends

in the Tuna Industry

SOUTH PACIFIC PACKING COMPANY

543 PICO ST. LONG BEACH

PHONE: LONG BEACH 7-1274

currents are so very slow that their direct measurement is impossible, being only of the magnitude of something like 100 feet vertical ascent per month. Hence we must use indirect means to estimate the currents. There are several approaches to the problem. One approach is to study, through indirect techniques developed by physical oceanographers, the processes involved in the vertical circulation of the ocean in order to measure the rate, extent, and amount of the upwelling. Another method is to examine the effects of the vertical currents on the temperature. salinity, oxygen content and phosphate content of the water, and from these estimate its extent. Another and quite different method is to get at the causal factors behind the upwelling and associated processes. These approaches are not mutually exclusive, rather they should be considered complementary, since an evaluation of casual factors requires ak knowledge of the mechanisms of water movements and of the effects resulting from the upwelling.

Serena Cafe

FINE FOODS CLEAN PLACE

Oldest Chef in Tijuana

Hold Banquets by Reservation

"The Place to Meet Your Friends"

TIJUANA MEXICO

Winds and Currents

It has been shown by H. U. Sverdrup, Director Emeritus of Scripps Institution of Oceanography, and others that the wind is the principal driving force which maintains the major circulation in the ocean and also produces upwelling. It is only the higher wind velocities, those above 13 knots, which are important in the generation of currents, and, of course, their effect will depend upon their direction, duration, and force, which will vary with the season off the west coast of North America.

The winds off the coast of California are characterized by a rather distinct annual cycle, and progression from one season to another follows a similar pattern each year. However, the winds are influenced by long period trends which causes a certain amount of year to year variation in the cycle. It may be well to examine the average annual characteristics of winds and currents off the coast of California in indicating how the process of upwelling occurs or is suppressed.

The winter period is characterized by storms, with periods of calm or variable winds occurring between storms. Just prior to a passage of a north-flowing current along the California coast. As a storm moves onto the coast, however, a strong wind blows from the northwest and north favoring the development of a south-flowing current. A calm or variable wind such as occurs between storms deevlops no current at all. In general, the north-flowing counter-current is stronger during the months of November through February than at any other time of the year and is located between the coast and 40 to 100 miles offshore. The south-flowing California current, located outside the counter-current is usually rather weak during this season of the year.

The spring period is characterized by prevailing northerly and northwesterly winds nearly parallel in direction to the

(*Continued on page 37*)

FOR PROMPT ATTENTION

SALES · PARTS

REPAIRS · SERVICE

CATERPILLAR MARINE DIESEL ENGINES

WOOD FREEMAN METAL MARINE PILOT

HALLETT DIESEL ENGINES

BENDIX depth RECORDER

FEDERAL PROPELLERS

HALLETT AIR-COOLED DIESEL POWER

RCA RADIOMARINE Radiotelephone AND Radio Direction Finder

Universal 100% MARINE MOTORS

SHEPHERD

DIESEL MARINE

2031 BELT STREET - SAN DIEGO

Phone FRanklin 99471

SAN DIEGO'S *Friendly* BANK

Complete Banking Service

Haciemos Transciones en Espanol a Neustros Amigos

Fazemos Transacoes Bancarias con Todas as Falicidades em Portugues aos Nossos Amigos.

Drive-in Parking — Second Avenue Entrance

UNITED STATES NATIONAL BANK OF SAN DIEGO

Season's Greetings

TO THE TUNA FLEET

VERNON M. BROWN

INSURANCE

• Marine • General

756 STATE F-9-1341

SAN DIEGO

HOTEL

Marlin Inn

Greetings

. . . and good fishing to our many friends in the industry. We wish to express our sincere thanks for your patronage during the past year.

ROSECRANS AND HARBOR DRIVE

SAN DIEGO 6, CALIF. PHONE B-3143

Season's Greetings

TO THE TUNA FLEET!

WEST COAST PACKING CORP.

• LONG BEACH

• SAN DIEGO

• NEWPORT

Packers of

★ GENOVA TONNO ★ FAR-FAMED TUNA

★ CAMPANIA TOMATO PASTE

BE OUR GUESTS WATCHING THE BEAUTIFUL

ROSE PARADE

NEW YEARS DAY—8:30 A. M.

KFI-TV CHANNEL 9

SAVE 25%

ON MEXICAN
BAIT LICENCES

WRITE OR PHONE TO . . .

Naviera y Comercial

S. de R. L.

SHIP BROKER

HECTOR F. SALAZAR • MATIAS ARJONA

P. O. Box 119 Telephone 126

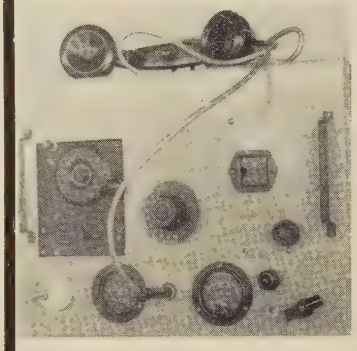
ENSENADA, BAJA CALIFORNIA, MEXICO

PACIFIC ELECTRONICS

OF SAN DIEGO

Offers a New 100-Watt Transmitter

FOR SMALL BOATS



- 32-Volt Operation
- Built-in Receiver
- Sturdy GE Dynamotors
- Five Bands
- Low Price

A radio phone unit designed for small boat owners—unusually compact with full 100 watts power outlet. At a new low price made possible by use of carefully selected surplus parts—you save approximately 40%. Write or phone for full information—NOW.

PACIFIC ELECTRONICS

2355 India St., M-1221 SAN DIEGO, Calif.

Fast and Dependable

MARINE REPAIRS

MAIN 2455

Our phone number since 1906

Now ready to serve you, two 1,000-Ton and one 400-Ton floating dry docks, part of the extensive modernization program just completed. First boat up on the new dry docks is the Clipper "American Boy," shown above.

Distributors

UNION DIESEL ENGINES

Campbell Machine Co.

FOOT OF 8th AVENUE SAN DIEGO, CALIF.

SARDINE

(*Continued from page 34*)

coast of central California. The northerly winds, when blowing parallel to the coast at velocities exceeding 13 knots for a period of several days or longer, set up a current pattern which brings about upwelling. The sequence of events is about as follows. The first effect of the drag of the wind on the sea surface is to set up motion in the surface layers in the direction of the wind. This pure wind drift current soon veers to the right due to acceleration associated with the earth's rotation, so that the resultant water transport in the surface layers has a component offshore. As a result, the light surface water adjacent to the coast will be transported away from the coast and will cause the surface to slope up to the west. Eventually, however, a steady state is reached in which the depleted water must be replaced near the coast by heavier subsurface water, thus "upwelling" along with it the nutrients.

If we stopped at this point in the description of the effects of the northerly winds it would not be clear how this same chain of events also brings about an intensification of the California current. The upwelling leads to changes in the distribution of mass, with the denser upwelled water accumulating along the coast and the light surface water being transported away from the coast. This altered distribution of density is reflected in the surface topography, in that the ocean surface now slopes downward toward the shore and due to this slope, force of gravity will tend to cause the surface water off-shore to flow downhill toward the coast. As soon as such flow begins, however, the acceleration due to the effect of the earth's rotation turns the water toward the right, and when equilibrium is reached the water flows toward the south. This process of the altered distribution of density giving rise to a current which flows in the direction of the wind is thus a secondary effect of the wind in producing ocean currents. It is this indirect effect that is shown in charts of dynamic heights, such as the charts issued in the Scripps Institution physical and chemical data reports. As shown by these charts, the final result of northerly and northwesterly wind is to cause the California current to become intensified and extend nearly to the coast. The counter-current, on the other hand, is weak or obliterated in the surface layer of the ocean although it may still be present at a depth. Upwelling continues as long as the winds are favorable. Enriched water is transported and diffused both along shore and offshore from the area of upwelling.

Upwelling does not occur simultaneously along the length of our coast, but begins in the south and gradually moves northward. It seems to be definitely as-

(*Continued on page 39*)

"FRIENDLY FLORIST SERVICE"
Point Loma Florists
1053 Rosecrans Bayview 8156
SAN DIEGO, CALIFORNIA
After Hours Call Bayview 2-1512

NEW! YET BACKED BY OVER 30 YEARS OF EXPERIENCE AND FRIENDLY PERSONAL SERVICE

Goodbody's
El Cajon Blvd.
MORTUARY
5027 EL CAJON BOULEVARD
TALBOT 1-8188

To all Fishermen—in port or on the open seas — A Merry Christmas and a Bountiful New Year.

FRANK BUONO
General Manager.

SAN DIEGO FISHERMEN'S ASSOCIATION
410 Harbor Lane
SAN DIEGO, CALIFORNIA

CIA. MARITIMA,
INDUSTRIAL y MERCANTIL, S.A.

Productos de Pesca, Enlatados
Transportes Maritimos

PLANTA EMPACADORA ESTABLECIDA EN BAHIA TORTUGAS, BAJA CALIFORNIA; TRANSPORTE DE PASAJEROS Y CARGA ENTRE LOS PRINCIPALES PUERTOS DEL LITORAL DEL PACIFICO.

Contando para ello con el buque motor nacional "Ensenada II," adquirido en EE. UU. AA., con capacidad para 400 toneladas.

Distribuidores para la Republica Mexicana, de los productos de

PESQUERA DEL PACIFICO
S. DE R. L.
ENSENADA, BAJA CALIFORNIA, MEXICO

Portraiture of finesse

We Specialize In

WEDDING GROUPS
WEDDING ALBUMS
PORTRAITS
CHILDREN PHOTOS
FAMILY GROUPS

HOURS—10:00 A. M. TO 6 P. M.
SUNDAYS and EVENINGS BY APPOINTMENT

Eacobellis Studio

1760 STATE STREET SAN DIEGO

EMPACADORA del PACIFICO

S. de R. L.

CALLE Sta. No. 849
APARTADO No. 17
TELEFONO 105-J

ENSENADA, B. CFA., MEX.

- Abulon
- Albacora
- Cahuama en su Jugo

- Ejote
- Tomate
- Chicharos

Macarela

Get *FAST* Production Line Service and Repairs

on

DE SOTO — PLYMOUTH
CHRYSLER — DODGE
AUTOMOBILES

Walt Tufford

Front Street From B to A **Main 3186**

DE SOTO - PLYMOUTH

Horizon

Scripps Institute of Oceanography research vessel which is specially equipped to perform various oceanographic and biological duties at sea on its periodic cruises.

SARDINE

(*Continued from page 37*)

sociated with the northward migration of an extensive region of atmospheric high pressure. This semi-permanent high pressure area moves from the vicinity of Cedros Island in perhaps February and March to Cape Mendocino in September, and has associated with it northerly winds in the region near the coast. Off Pt. Conception, for example, upwelling occurs during the spring and early summer months, but ceases or becomes less apparent during the late summer. Off Cape Mendocino, on the other hand, upwelling is most intense during the late summer months.

In fall, as the semi-permanent high pressure cell weakens and moves rapidly southward, the region is subjected to the passage of storms at increasingly frequent intervals and the wind distribution is changed so that southerly winds are more predominant. This results in a weakening of the California current and the reestablishment of the counter-current along the coast. The annual cycle is then completed.

Deeper water that is brought into the

(*Continued on page 41*)

GRAYMARINE
Sales and Service
Distributed by
NUTTALL-STYRIS CO.

Prompt Service with a Smile
OLIVER'S MARINE BAKERY SUPPLIES
ANY KIND OF BAKERY GOODS
Will Appreciate a Call
Franklin 6454 Jackson 6883 Main 3353
3654 Mississippi St., San Diego 4, Calif.

WHOLESALE — RETAIL
"Deal with Dean"
Dean Motors, Inc.
Dealers in Fine Automobiles
UNION and "A" STREET
SAN DIEGO 1, CALIFORNIA
Al Dean Phone Main 6114

IF YOU'RE ON WHEELS
BANK IN A HURRY
at SECURITY BANK'S AUTO BRANCH

No walking . . . no standing in line . . . no parking difficulties or expense. Just drive in . . . bank on wheels quickly, easily at Security's Auto Branch.

ENTER ON 5th AVENUE — Just South of E

Security Trust & Savings Bank of San Diego
EACH SEPARATE ACCOUNT NOW INSURED TO $10,000 FDIC
MEMBER FEDERAL RESERVE SYSTEM

AMERICAN PROCESSING CO.

OLIVER BRAND PRODUCTS

FISH MEAL —For Poultry Feed

FISH OILS —For Feed, Paint, Soaps. (Contains vitamins D and A)

FISH SOLUBLES —A valuable ingredient mixed with food for stock.

MEAT & BONE MEAL —For Poultry.

TALLOW

AMERICAN PROCESSING CO.

FOOT OF BEARDSLEY ST.

San Diego, California

LAWRENCE OLIVER
President

RICHARD OLIVER
Superintendent

See Dick Grihalva First!

That's the buy-word for San Diego's best bargains in super-clean postwar used cars . . . for the sensational new Anatomic Kaiser with 115 h.p. engine and 7.3 compression.

Dick Grihalva Motors

San Diego's KAISER-FRAZER Headquarters

1300 STATE ST., at "A" Phone MAIN 7153

A. B. KNOWLES & CO., Inc.

MARINE INSURANCE UNDERWRITERS

Hull — Cargo — Inland Marine — War Risks

UNITED STATES MANAGING GENERAL AGENTS

UTAH HOME FIRE INSURANCE COMPANY

Established 1886

PACIFIC COAST MANAGING GENERAL AGENTS

RELIANCE INSURANCE COMPANY OF PHILADELPHIA

Since 1841

ASK YOUR BROKER OR AGENT TO CONTACT US

LOS ANGELES
617 South Olive St.
Telephone: Tucker 7116

SAN FRANCISCO
114 Sansome Street
Telephone: Exbrook 2-8124

SEATTLE
264 Colman Building
Telephone: Eliot 1794

CUTRI INSURANCE AGENCY — FIRST NATIONAL BANK BUILDING — SAN DIEGO, CALIF.

SARDINE

(*Continued from page 39*)

zone of plant growth by upwelling has different characteristics than surface water. In our routine analysis of physical and chemical characteristics of the water we concern ourselves primarily with four measurements: temperature, salinity, dissolved oxygen content and phosphate content. We have indicated that the zone of plant growth (the euphotic zone) is about 100 meters deep ordinarily. It so happens that this is also the maximum depth to which the water is homogenized by the action of waves, currents, and instability associated with evaporation. In this mixed layer the temperature is nearly uniform, but below it the temperature drops sharply as the depth increases. The oxygen content also decreases sharply with depth below the mixed zone. Within the upper 100 meters depth the water is usually nearly saturated with oxygen, but at 800 meters depth the saturation may be as low as 5%. On the other hand, both salt content and phosphate content increase with depth below the mixed layer. Hence water upwelled from some depth will be colder, more saline, of higher phosphate content and of lower oxygen content than ordinary surface water.

It should be possible, by observing the extent of the reduction in temperature or increase in salinity of surface waters in regions of upwelling, to estimate the extent of the upwelling. However, this estimation requires a knowledge of average conditions, otherwise there is no standard by which to gauge the reduction in temperature or increase in salinity. Hence this is a fairly long term project.

Our primary interest in upwelling is in the enrichment of the surface waters resulting therefrom. The abundance of marine plants (diatoms) undoubtedly depends to a large extent on the quantity of inorganic nutrients available for their growth nad multiplication. Hence the size of the "crop" of marine plants produced during a given year may be directly related to the intensity of upwelling during that year.

The Food Chain

Marine plants are the first link in the organic food chain. They are directly used as food by many marine animals. These animals that graze upon marine plants are spoken of as herbivores. An increase in abundance of plants would not be immediately reflected in an increased number of herbivores. There must be a time lag. Undoubtedly a portion of the marine plants disappear into the depths and are not available as food.

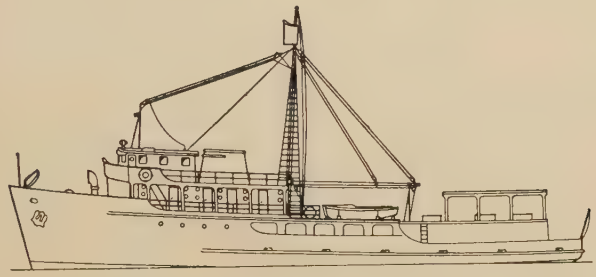
(*Continued on page 43*)

The oldest name in tuna.

THE HALFHILL CO.
5442 JILLSON ST.
LOS ANGELES 22, CALIF.

In Tijuana It's
Oscar's Havana Club
For the
"Raciest Floor Show"
IN OLD MEXICO!
129 MAIN STREET PHONE 535

SERVICING
REPAIRING



- New and enlarged repair facilities.
- TEXACO Marine Fueling Station.
- Marine Railway.
- HOWE Ice Machines.

Harbor Boat & Yacht Co.
5060 HARBOR DR. PHONE B-3133
SAN DIEGO, CALIF.

Chrysler Plymouth

THE HOUSE
THAT APPRECIATES
A CUSTOMER!

MARK HANNA
INDIA at C Sts. Franklin 7557

DRAKE & BULLEN

BOATS—ENGINES
MARINE EQUIPMENT

- Blume Shrimp Dragging Winches
- American Chain and Cable
- Wire Rope
- Whitlock Cordage—Manila Rope
- Hobbs—Batteries
- Onan—Air Cooled Engines
- Kurz & Root Generators
- Leece Neville—Generators and Starting Motors
- Reuland Electric Motors
- Chrysler Gasoline Engines
- Superior Diesel Engines
- Mercury Outboard Motors
- Navicote Marine Paints
- Wix Heat Exchangers and Oil Coolers
- Gates, Belts, Hose, Sheaves, and Aprons
- Sperry Automatic Steering

Special

Rebuilt G.M.C. 165-225 H.P. Diesel Engines

Rebuilt Atlas, Superior and Other Engines

PARTS AND SERVICE FOR ALL DIESEL ENGINES

SAN DIEGO, CALIFORNIA
1150 HARBOR DRIVE
F-9-4465

RINCON SPRINGS

Charcoal Broiled Steaks
Rotisserie Broiled Chickens

Heavenly Food on the Highway to the Stars

On the sunny slopes of Mt. Palomar at the junction of the Escondido-Pala-Palomar-Lake Henshaw roads.

Cocktails

OPEN EVERY DAY AT 12 NOON
EXCEPT MONDAY

RESERVATIONS SUGGESTED

PHONES—RINCON 1 and PALA 2121

Christmas Greetings

. . . to our many good friends in the fishing industry, and may the New Year be a prosperous and a happy one for you and yours. Also, our warm thanks for the privilege of serving you during the past year.

CARLSON-COLLINS
COMPANY

Complete Line of Galley Ranges, Including Our New Stainless Steel Ranges

SERVICE ON ALL OIL RANGES
1760 KETTNER *SAN DIEGO, CALIFORNIA* F-5444

SARDINE

(*Continued from page 41*)

Most marine plants are denser than sea water and tend to sink downwards to depths where growth is impossible. Two processes act to prevent the whole population from disappearing in this way. The first is population increase: the plants within the euphotic zone are growing and dividing so that new plants are always being added. The other process: vertical stirring of the mixed layer by wind and waves. The proportion of plants that are "lost" from the euphotic zone may be a variable one, with the result that the relation between enrichment and the size of the herbivore population may not be as clear cut as in the case of the plant population. Carry the organic chain one step further along—to the carnivores that feed upon the herbivores (the sardine is in this group since its principal food consists of plankton animals rather than plants) and the relation may be more obscured.

It may be asked for us—"But why are you concerned with all this? What relation can the sinking of diatoms possibly have to the sardine?"

Our concern arises from the fact that we do not want to do any unnecessary work. We want to find short cuts. Now, if the food chain were sufficiently direct—if a given amount of enrichment would always result in a diatom population of predictable size—and these were always equally available as food for animals—so that we could predict from the diatom population the size of the herbivore population—then it would be possible to bypass these intermediate steps in the cycle and predict directly from the amount of enrichment what the effect would be on the survival of sardine larvae. This we would like very much to be able to do. In fact, we would prefer to take it one step further back still, and predict from the strength and duration of winds favorable for upwelling what the effect would be on the success of sardine recruitment. In that way we could let the meteorologists collect our data for us. But if this relations becomes obscured along the food chain—if a variable fraction of the diatom population is available as food, for example—we may not be able to bypass the intermediate steps in the chain, but will have to study it link by link. Much more information is required before the proper short-cuts can be selected.

However, Walford (1946) has obtained results that encourage us in the belief that much of this work can eventually be bypassed. He obtained a definite correlation between the strength of year classes (as determined from their

(*Continued on page 45*)

CLARE BOOKER
MARVIN K. BROWN
Cadillac - Oldsmobile Inc.
1ST AVE. AT "A" PHONE M-5186

Henry Langhorst
Cafe
Seafood Restaurant
and
Cocktail Lounge
FOOT OF HAWTHORNE
Phone Main 9566
SAN DIEGO, CALIF.

SAN DIEGO EXTERMINATING CO.
During the
HOLIDAYS
While You Are At
HOME
Have Your Boat
FUMIGATED!
3645 INDIA ST. SAN DIEGO, CALIF.
Prompt Service—Call J-6500

- Woolsey Marine Paints
- Sundry Boat Supplies
- Albacore Jigs
- Anchors and Chains
- Fishing Tackles
- Plymouth Manila Rope

"IF IT SWIMS WE CAN CATCH IT"

San Diego Marine Hardware
1502 INDIA ST. PHONE F-5253

Manufacturers of
KELP PRODUCTS
KELCO COMPANY
530 BROADWAY
SAN DIEGO 1, CALIF.

Season's Greetings
to the Tuna Fleet

Let us work together to make 1951 a good year, cooperate to work out our problems with due consideration for our neighbors' needs.

Cecil W. Drake
FRANKLIN 9-7421 B STREET PIER
SAN DIEGO, CALIFORNIA

Mac says:

When you need stationery, cards, reprints of your ad, announcements, invitations, or any kind of printing, in a hurry and reasonable . . . .

Just Whistle

John T. "Mac" McInnis

PRINTING and PUBLISHING

PHONE ORANGE 707

127 SOUTH OLIVE ST. ORANGE, CALIFORNIA

SHIP'S PROVISIONERS

SINCE 1910

•

Retailers - Wholesalers of

- Quality Meats
- Fruits & Vegetables
- Domestic Food
- Liquor & Beverages

•

De Falco's

MARKET CO.

1703 India at Date

F 7382 SAN DIEGO, CALIF.

Complete Line of

MOVIE EQUIPMENT

- CAMERAS
- PROJECTORS
- FILMS

SALES — RENTALS — SERVICE

Full length features comedies and cartoons sports and musicals.

We Give S. & H. Green Stamps

Tunafleet Movie Service

1140 HARBOR DRIVE SAN DIEGO, CALIF.

OUR TELEPHONE IS F-7887

CUMMINS

DIESEL ENGINES

Industrial—Marine

100 H.P.—550 H.P.

- **Dependable**
- **Economic**
- **Power**

F. R. LAUX

2286 Main St. Phone F-0288

SAN DIEGO, CALIF.

SARDINE

(*Continued from page 43*)

contribution to the commercial catch) and the intensity of upwelling during the season of their origin. He used the only data then available—salinity observations of the surface waters as measured at Scripps pier—for assessing the intensity of upwelling. It is now clear that one factor, such as salinity of the water, should not be used alone as an index of upwelling, since higher salt content may result from causes other than upwelling of deeper waters. However, if used in conjunction with other characteristics of upwelled water (temperature, oxygen content, phosphate content) it should be a satisfactory index. Much better data on upwelling will be available from the current surveys.

We have gone into this problem of productivity in considerable detail, because it seems to use to be the center of our whole investigation. Even so, we have barely scratched the surface of many phases of it.

The extent of the sardine spawning area may be of considerable importance in the problem of food supply for the sardine larvae. When spawning is widespread, the larvae would be put into contact with a larger food supply—there would be less competition between the larvae for food, with the result that chances for survival would be enhanced. When the spawning area is restricted, competition between individuals would be greater with the result that survival might be much poorer. Hence, we are interested in those conditions that cause variations in the extent of spawning. There is considerable evidence that the extent of the spawning area may be directly dependent upon physical features such as temperature. All spawning during the 1949 season occurred in water between 13.30°C and 16.20°C (temperature at 15 meters depth). The northward progression of spawning during the season was definitely associated with the northward progression of favorable spawning temperatures, while the gradual elimination of spawning from the southern part of the survey area coincided with the rise in temperature above the favorable range.

One other problem concerning the food supply may be mentioned briefly. We are obtaining quantitative data on the larvae of a number of species of fish that undoubtedly compete with the young sardine for food—such fish as anchovies, sauries, jack mackerel, to mention only a few of the more important. This competition may have a considerable ef-

(*Continued on next page*)

Central Sheet Metal Works
MARINE WORK A SPECIALTY
PHONE MAIN 5405
718 FRONT ST., COR. G SAN DIEGO, CAL.

AMERICAN AWNING & TENT COMPANY
1105 INDIA STREET, SAN DIEGO 1, CALIF.
"Everything in Canvas"
J. E. MEYER MAIN 8550

That Salty Salt
WESTERN SALT CO.
Plant
South End of
San Diego Bay
Office
1245 National Ave.
SAN DIEGO
CALIFORNIA

SAFE
DEPOSIT
BOXES
4.00 UP PER YEAR PLUS 20% FEDERAL TAX
Key deposit of one dollar, to be returned at expiration of rental.
San Diego Trust & Savings Bank
COMMERCIAL TRUST SAVINGS
Member Federal Insurance Corporation
N. W. CORNER SIXTH and BROADWAY

At Your Service
Bill Soloff
shop for MEN

PETE NEWBURG
BILL SOLOF
AL RODRIQUES
Grant Hotel
F-2832
4th Avenue

A Merry Christmas and A Happy and Prosperous New Year
IVA L. BARKER
CUSTOMHOUSE BROKER
328 WEST F STREET
PHONE F-1785 SAN DIEGO, CALIF.

Dancing and Entertainment Until
6 A. M. Every Day
ALOHA CAFE
S. DE R. L.
LIVEST NITE SPOT IN TOWN
Tel. Tijuana 456
FRANK B. COTA, Admr.
FRANK MAGGIORA, Mgr.
268 AVENIDA REVOLUCION
TIJUANA, OLD MEXICO

Yes! We Have the Old Know-How!
- Welding
- Metal Spraying
- Refrigeration
- General Boat Repairing

William Kairot
FOOT OF CROSBY ST.
SAN DIEGO — MAIN 9448

FISHERMAN'S
FIRST AID — DRUG SUPPLIES
Bay City Pharmacy
(for the fisherman)
Phone F-96393
1909 India, S. D. 1, Calif.
LEONARD BONHAM, Registered Pharmacists
BILL LOONEY
For Emergency Service
Phone T-4764 Phone H-21923

fect on the success or failure of year classes of sardines.

Predation

Although fluctuations in food supply seems to us to be the most important factor behind the success or failure of year broods of sardines, we cannot overlook the possibility that other causes of mortality may be of considerable or even prime importance. Especially we cannot overlook the effects of predation. It has already been pointed out that the young sardine larvae have a formidable array of predators—including many ubiquitous and exceedingly abundant members of the plankton community. The abundance of these organisms can be determined from the plankton collections. Hence, a study can be made to determine what relationship if any exists between the abundance of such predators as arrow-worms and the survival rate of the young sardines. Another form of predation may be more difficult to investigate—the predation of disease-producing organisms. The possible role of diseases in effecting the present decline in sardine abundance of the California sardine is not unique—there seems to be a world wide decline in sardine abundance. The decline in the Japanese fishery for sardines has been even more precipitous than our own. The Atlantic pilchard is also suffering a similar decline — Portugal, for example, is very concerned over the decline in her sardine fishery. Could the simultaneous decline in abundance in these several fisheries be just a matter of chance coincidence? Or is there some factor—such as an epidemic among sardines—common to all three? For example, there has been an epidemic among the Atlantic coast herring population during the past few years that has seriously crippled the fishery. The sardine is a close relative of the herring. Hence it is likely that it could be similarly affected by disease-producing organisms. This possibility needs to be given serious consideration.

One measure of the success of recruitment can be obtained from estimates of survival during the larval period. Another measure of the success of year broods can be obtained from surveys of juvenile sardines made on the nursery grounds. The California Division of Fish and Game plans on surveying the abundance of juvenile sardines, four to six months old, on the nursery grounds. If the greatest mortality does occur during the first few weeks or months of life, the abundance of juvenile fish on the nursery grounds may reflect the relative strength of year classes. The problem of surveying juvenile sardines is a difficult one. The nursery grounds are extensive, and, as yet, imperfectly known. Also techniques for locating and sampling juvenile fish quantitatively have to be perfected. However, if the difficulties can be surmounted, the surveys of juvenile sardines should be of great value in assessing the strength of year classes in advance of their entry into the commercial fishery.

Distribution

Why are adult sardines more available to the fishery during some years than others? What are the environmental conditions that affect the distribution of the adult sardines? This problem of considerable importance to the sardine

J. M. MARTINAC SHIPBUILDING CORP.
Designers and Builders of COMMERCIAL FISHING BOATS
1501 RAILROAD AVENUE TACOMA, WASHINGTON

Southland
South Pacific
The J. M. Martinac Shipbuilding Corporation is proud to have assigned and built these successful clippers.
Cape Beverly
Mary Jo
Mary S

CAMPBELL CHEVROLET
SINCE 1923

You Are Invited To See The
NEW 1951 CHEVROLET
DECEMBER 9th, 1950
at
16th & BROADWAY PHONE F-1234

fishery is being investigated by the California Division of Fish and Game. In working on this problem they are using their new research vessel the MV *Yellowfin* on nearly a full time basis.

The object of the research is to correlate physical and biological oceanographic conditions with sardine distribution to determine the effects of these conditions upon the availability of sardines within the fishing area. In doing this it will be possible to utilize as basic data the oceanographic observations being collected by the Scripps Institution and the Fish and Wildlife Service, a number of aspects of which have been discussed in the preceding pages. To correlate their findings with these data the California Division of Fish and Game is taking a limited amount of oceanographic data at the spots where sardine schools are found—temperature observations (using a bathythermograph), samples of salinity at several depths, samples to determine diatom abundance, and samples of plankton.

OPERATION

(*Continued from page 17*)

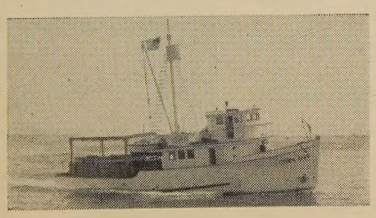
mission's Executive Secretary, said there would be no further issuance of mailed licenses to applicants until the suit was settled.

The latest embroglio, it may safely be said, is not the only law to stir up a hornet's nest. The Supreme Court had another on its hands as late as the first week in October, when it was supposed to have been acted upon, in that the court reconvenes following summer vacations. Another development in Texas' potpourri of shrimp industry activity, was the spade work involving the new Texas Shrimp Association, recently underway with the formulation of policy, et cetera. John Mehos, President of the new organization and one of the most astute businessmen in the industry, announced early in November that this group, as an initial move, would hold a convention either in January or February, 1951, if plans worked out satisfactorily. The basic idea behind convention plans would be to corral members for a business and pleasure session, the former aim designed to acquaint them with the aims, tenets and benefits of the new organization. Several meetings of the Board of Directors have been held, of course, Mehos said. Final date will depend upon the shrimp run along the Coast, and will be timed with a low production period. The site has not yet been decided upon. Mehos predicted that, by the end of 1950, at least ninety per cent of the current crop of shrimp dealers would be members of the body.

GALLERY FLORISTS
1765 4TH AVENUE
FRANKLIN 8922
SAN DIEGO, CALIF.

● See Tyson first for your new Pontiac . . . for Tyson is FIRST in Customer Satisfaction.
● . . . or, when a new car is beyond your reach, there are no better Used Car Values than at Tyson's.
1040 NATIONAL AVENUE • NATIONAL CITY • TYSON PONTIAC CO.

Do You Want Your
RUST STOPPED?
Don't wait until zinc is no longer available before you decide to
METALLIZE
CLARK METALLIZING, Inc.
NEWPORT BEACH, CALIFORNIA
PHONES: HArbor 2509 (Newport Bch.) TAlbot 1-6803 (San Diego)

"Pete" Rask

"Bud" Rask

Builders-Designers
of Fine Commercial and Pleasure Craft
Since 1923
Complete Marine Service
• Marine Diesels
• Marine Gas Engines
Rask Boatbuilding Company
1511 MARINE WAY
CORONADO, CALIFORNIA
Henley 3-8322 — Henley 3-9859
Reconversions • Repairing • Building • Remodeling

CLASSIFIED

BOATS FOR SALE

40' Albacore fishing boat for sale by owner. Ready to go fishing. Practically new. Tel. Jackson 2014, or Main 0174, S. D.

For Sale. Steel hull purse seiner NEPTUNE NO. I. Built 1946. Length 74' 9". Beam 21'. Main engines 330 H.P. May be purchased with or without sardine net. Available for inspection. Address Owners Neptune No. I, P. O. Box 1088, Monterey, California.

BOATS WANTED

Want good albacore boat for next season. Able to pay right price for good boat. Write Box 136, Pan-American Fisherman, Broadway Pier, San Diego, Calif.

MISCELLANEOUS

Want Bausch & Lomb binoculars, used. Box 136, Pan-American Fisherman, Broadway Pier, San Diego, Calif.

Fairbanks Morse 5 & 10 H.P. Diesel Engines. James Cowan, 2405 E. Harbor Drive, San Diego, Calif.

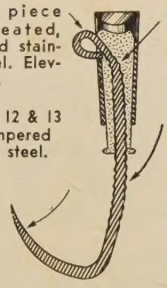
10 Kraissl Company No. 72-42AF 2½" Duplex Strainers with flanged Ports. Bronze; Navy approved. For oil, steam, gas or water. Sacrifice. $125.00 ea. GUNDERSON BROS. Engineering Corp. 4700 N.W. Front Avenue, Portland 8, Oregon.

Fisher 6-volt 25 watts transmitter receiver and power supply. New condition $275—used $225. POWER ELECTRONICS, 534 Market St., San Diego. M-7234.

SQUIDS

Unequalled for . . .
DESIGN STRENGTH
BALANCE UNIFORMITY

- One piece heat treated, tempered stainless steel. Eleven sizes.
- Sizes 12 & 13 oil tempered spring steel.
- Hook bonded to core, cannot loosen.
- Tinned, feathers stay in place.
- Obtainable Through Dealers.



E. H. Garwood

3135 Pine Avenue — Phone: L. B. 45-290
LONG BEACH 7, CALIF.

INDEX TO ADVERTISERS

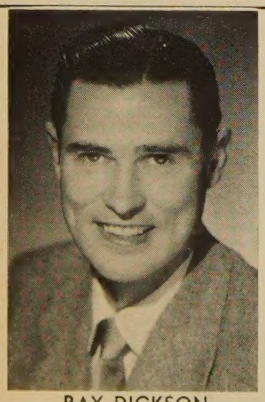
	Page
A	
Acme Beer	41
Aloha Cafe	46
Altes Beer	28
American Processing Co.	40
American Tent & Awning	45
Avondale	30
B	
Baranov's	32
Barker, Iva L.	45
Bay City Drug	46
Booker, Clare	43
Brown, Vernon	35
C	
California Tuna Packing	6
Campbell Chevrolet	46
Campbell Machine Co.	36
Carlson-Collins	42
Central Sheet Metal Works	45
C.I.A. Martima	37
Clark Metallizing	47
Cutri Insurance	30
D	
Dansforth Anchors	33
Dean Motors	39
DeFalco's Market	44
Drake, Cecil	43
Drake & Bullen	42
E	
Eacobellis, George	38
El Cortez Pontiac	48
Empacadora Del Pacifico	38
F	
Fishermans Yard	31
Fishong Lures	31
French Sardine Co.	8
G	
Gallery Florist	47
Garwood, E. H.	48
Goodbody	37
Grihalva, Dick	40
Gunderson Bros.	48
H	
Halfhill Co.	41
Hanson & Rowland	10
Harbor Boat & Yacht Co.	41
Havana Club	41
J	
Jessop's	28
K	
Kairot, Wm.	46
Kelco Co.	43
Knowles, A. B. & Co.	40
L	
Langhorst Cafe	43
Laux, F. R.	44
Long Beach Marine Repair	26
M	
Marlin Inn	35
Mark Hannat	41
Martinac, J. M.	46
Martinolich Shipbuilding Corp.	4
McInnis Printing	44
N	
National Steel	2
Naviera y Commercial	36
New England Fish	3
Nuttal-Styris	39
O	
Olivers Marine Bakery	39
P	
Pacific Electronics	36
Pesquera del Pacifico	32
Power Electronics	48
Pt. Loma Florists	37
R	
Rask Boat Buildnig	47
Reed, A. O.	33
Rincon Springs	42
S	
Security Trust	39
Serena Cafe	34
Shepard Diesel	34
Solof, Bill	45
South Coast Packing	33
Standard Oil	12
Sunset Photo	Inside Front Cover
S. D. Exterminating	43
S. D. Fisherman's Assn.	37
S. D. Gas & Electric	Inside Back Cover
S. D. Marine Construction Co.	7
S. D. Marine Hardware	43
S. D. Trust & Savings	45
T	
Tufford, Walt	38
Tunafleet Movie Service	44
Tyson Pontiac	47
U	
Union Diesel Engine Co.	9
U. S. National Bank	34
V	
Valle's	39 & 48
Van Camp Sea Food	Back Cover
W	
West Coast Packing	35
Westgate-Sun Harbor	5
Western Salt	45

POWER ELECTRONICS

Surplus Marine Radio and Radar

Tubes Transformers Parts

534 MARKET ST. M-7234 SAN DIEGO



RAY DICKSON
General Sales Manager

He Sells 'em

Volume deals backed up by particular service is a team hard to beat! Ask the fleet—

He Services 'em

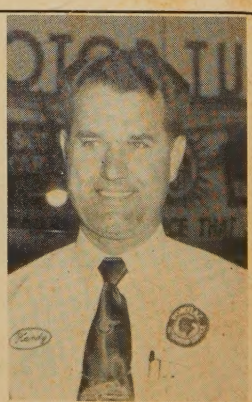
Monk Sanders

EL CORTEZ PONTIAC CO.

"THE HOME OF YOUR PONTIAC IN SAN DIEGO"

16th and Broadway

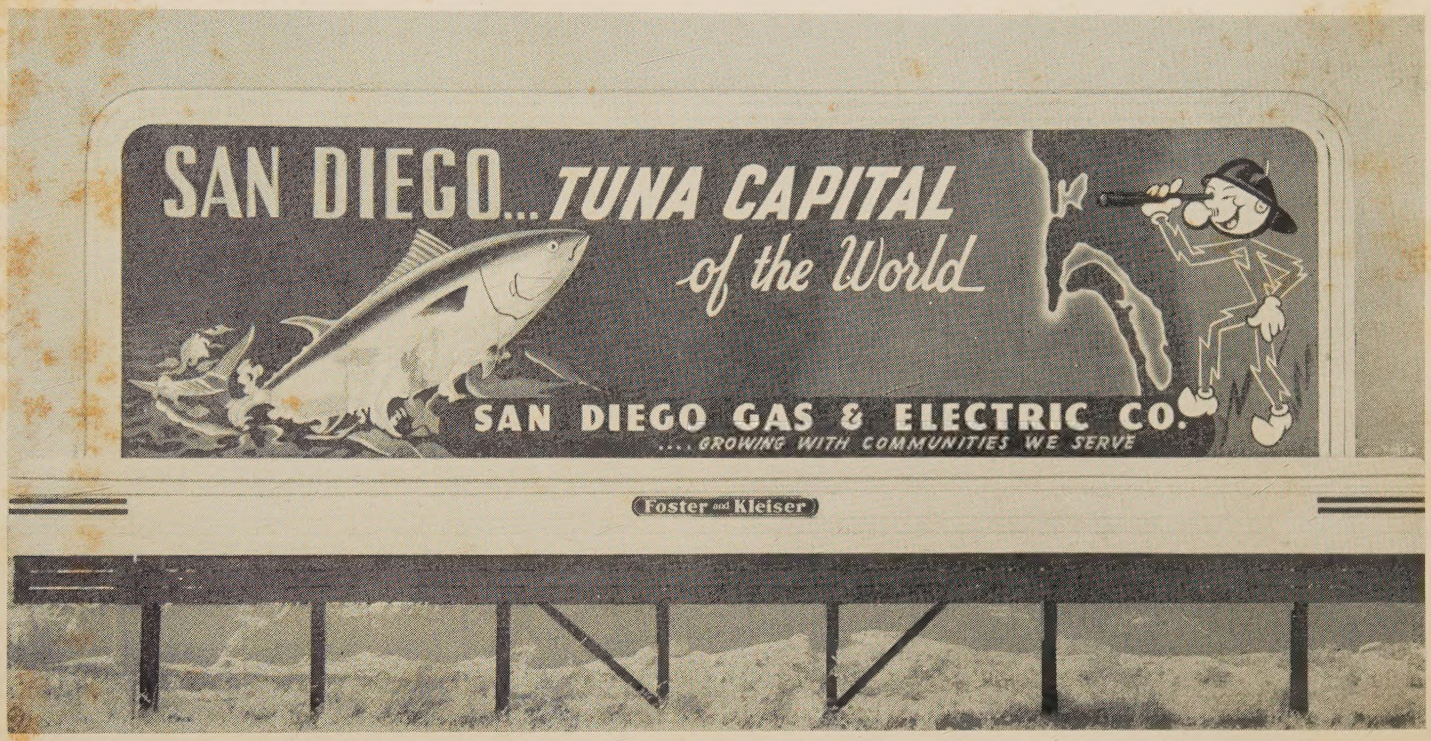
Anytime 'Til Nine on Auto Row



RANDY OVERLEASE
Service Manager

Phone F-6656

San Diego Gas & Electric Company Proudly Acclaims San Diego's Tuna Industry.....



For the past six months, four highway bulletins, as above pictured, have told visitors and residents alike, that our tuna industry is tops.

We are happy to serve this great industry with natural gas and electricity, and appreciate the business.

SAN DIEGO GAS & ELECTRIC COMPANY

One of America's tax-paying, business-managed private enterprises.

Joy to the World...

Our Best Wishes for the Holiday Season and a Happy and Prosperous New Year to our many friends and their families in the fishing industry.

VAN CAMP
SEA FOOD COMPANY, INC.
TERMINAL ISLAND, CALIFORNIA
SAN DIEGO, CALIFORNIA ASTORIA, OREGON